United States Court of Appeals

for the Second Circuit



APPELLANT'S APPENDIX

76-1083

UNITED STATES COURT OF APPEALS

FOR THE SECOND CIRCUIT

B

No. 76-7083

FREQUENCY ELECTRONICS, INC.,
Plaintiff-Appellee

-against-

NATIONAL RADIO COMPANY, INC.,
Defendant

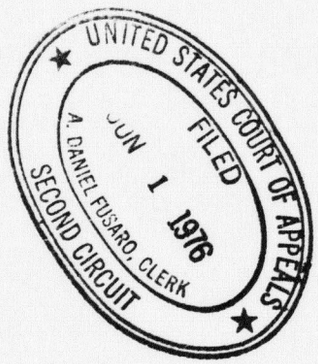
-and-

LOUIS LERNER
Defendant-Appellant.

APPEAL FROM THE UNITED STATES DISTRICT
COURT FOR THE SOUTHERN DISTRICT
OF NEW YORK

RECORD APPENDIX

- VOL. III -



Edwin J. Carr, Esquire
Rich, May & Bilodeau
One State Street
Boston, Massachusetts 02109
Phone: (617) 742-6550
Attorney for Defendant-
Appellant

Local Counsel:

Chester J. Straub, Esquire
Willkie, Farr & Gallagher
One Chase Manhattan Plaza
New York, New York 10005
Phone: (212) 248-1000

ASSIGNMENT OF PATENTS

WHEREAS, National Radio Company, Inc., a Massachusetts corporation having its principal office at 111 Washington Street, Melrose, Massachusetts has obtained, used and is using certain patents which are registered with the United States Patent Office, and bear the registration numbers and dates on the list hereto attached, and

WHEREAS, Frequency Electronics, Inc., a Delaware corporation having its office at 3 Delaware Drive, New Hyde Park, New York, is desirous of acquiring said patents and the inventions claimed therein together with the know-how associated therewith,

NOW THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, said National Radio Company, Inc. hereby assigns to said Frequency Electronics, Inc. all right, title and interest in and to the patents and inventions claimed therein together with the know-how associated therewith, said patents bearing the following registration numbers and dates (as registered in the United States Patent Office):

See List of Patents attached hereto
and incorporated herein by reference.

Notice is hereby given that the said patents assigned hereunder are subject to a security interest in favor of said National Radio Company, Inc. under the Uniform Commercial Code.

IN WITNESS WHEREOF, National Radio Company, Inc. hereto sets its hand and seal this 31st day of January, 1969.

NATIONAL RADIO COMPANY, INC.

By Ray E Hoerner

Commonwealth of Massachusetts)
Middlesex County)ss

On this 31st day of January, 1969, before me personally came Ray E. Horner to me known, who being by me duly sworn, did depose and say that he is the Executive Vice-President of National Radio Company, Inc., the company described as the assignor in the foregoing assignment; that as such he executed said assignment for and on behalf of said company and that he was duly authorized so to do.

Notary Public
My commission expires June 21, 1969.

U.S. Patent No.	Title	Inventor	Date
2,883,540	Microwave Signal Generating System	E. F. Grant	April 21, 1959
2,960,663	Frequency Control Apparatus	W. A. Mainberger	Nov. 15, 1960
2,972,115	Molecular Beam Apparatus	J. R. Zacharias et al	Feb. 14, 1961
2,972,690	Ion Pump and Gauge	A. O. McCoubrey	Feb. 21, 1961
2,991,389	Cesium Ovens	E. F. Grant et al	July 4, 1961
2,994,836	Molecular Beam Apparatus	J. H. Holloway	Aug. 1, 1961
3,005,121	Beam Intensity Control System	J. George	Oct. 17, 1961
3,021,491	Frequency Control Apparatus for an Atomic Beam Tube	A. Orenberg	Feb. 13, 1962
3,034,078	Temperature Compensated Microwave Cavity	A. O. McCoubrey	May 8, 1962
3,042,878	Frequency Control Apparatus for an Atomic Beam Tube	A. Orenberg	July 3, 1962
3,058,023	Molecular Beam Source	J. George	Oct. 9, 1962
3,060,384	Molecular Beam Frequency Standard Incorporating Control of Static Field	A. O. McCoubrey	Oct. 23, 1962
3,060,385	Carbon-Monoxide Frequency Standard	F. W. Lipps, Jr. et al	Oct. 23, 1962
3,076,942	Molecular Beam Frequency Standard	J. H. Holloway et al	Feb. 5, 1963
3,080,519	Nuclear Maser	A. O. McCoubrey et al	March 5, 1963
3,088,078	Frequency Control Apparatus for an Atomic Beam Tube	E. F. Grant et al	April 30, 1963
3,258,713	Cesium Beam Tube with Niobium Ionizer	J. George	June 28, 1966
3,305,290	Molecular Beam Cesium Getter	A. Ganssen et al	Feb. 21, 1967
3,323,633	Molecular Beam	J. George	June 27, 1967

BILL OF SALE PERSONAL PROPERTY 309

Know all Men by these presents

that National Radio Company, Inc. ("NRCI"), a Massachusetts corporation, of Melrose, Massachusetts,
in consideration of One Dollar and other good and valuable consideration
paid by Frequency Electronics, Inc ("FEI"), a Delaware corporation, of New Hyde Park, New York,
the receipt whereof is hereby acknowledged, do hereby grant, sell, transfer, and deliver unto the said FEI, as is, F.O.B., Melrose, Massachusetts the following goods and chattels, namely:

See list attached as Exhibit A

To have and to hold all and singular the said goods and chattels to the said FEI and its executors, administrators, and assigns to their own use and behoof forever.

And NRCI hereby covenant with the grantee that it is the lawful owner of the said goods and chattels; that they are free from all encumbrances, that it does have good right to sell the same as aforesaid; and that will warrant and defend the same against the lawful claims and demands of all persons,

In witness whereof the said NRCI hereunto set its hand and seal this 31st day of January in the year one thousand nine hundred and sixty-nine.

Signed and sealed in presence of

C. Albert J. Parke, Witness

NATIONAL RADIO COMPANY, INC.

By Percy E. Hawkins

Attachment to Bill of Sale - National Radio Company, Inc. to Frequency Electronics Inc.

INVENTORY OF COMPONENTS, EQUIPMENTS, RAW MATERIAL AND

DOCUMENTATION RELATED TO ATOMICHRON

JR96

ITEM	QUAN.	DESCRIPTION
1	7	NC 3501 Atomichrons
2	8	NC 6201-G3 B.T. complete
3	2	NC 1500 B.T. test beds, (NRCI built)
4	2	NC 1601 Atomichron carcasses
5	1	NC 1501 Atomichron carcass
6	3	NC 1001 N.T. complete
7	2	NC 2001 B.T. complete
8	1	NC 1601 B.T. complete
9	6	NC 2001 Atomichron carcasses
10	1	NC 3601 Mock-up
11	1	NC 3501 Engineering carcass
12	5	NC 3701 Pilot run Atomichrons
13	1	GEC (NC 3701) Engineering model Atomichron
14	20	NC 3701 Atomichrons (unassembled)
15	1	Engineering model F.M. test set
16	5	NC 1001 B.T. envelopes
17	3	NC 2001 B.T. envelopes
18	5	NC 1601 B.T. envelopes
19	4	NC 1001 Atomichron carcasses
20	2	NC 6201 Alignment jigs
21	2	NC 6201 B.T. waveguide brazing jigs
22	6	NC 6201 B.T. envelopes
23	1	P.E.M. Life test beam tube with power supply
24	4	Engineering pump stands (incomplete)
25	2	Preproduction type P.E.M. B.T. 1963 17"

ITEM	QUAN.	DESCRIPTION
26	1	17" Single cavity B.T. 1960
27	1	A.S.D. Prototype 1962
28	1	P.E.M. Prototype 1962
29	1	Missle born prototype 1958
30	1	Single cavity economy 17" 1959
31	1	Phase-lock Klystron waveguide test jig
32	2	LFE Model 814 ultra-stable microwave oscillator
33	1	Waveguide measuring set (compl. with jigs, stubs, etc.
34	1	Impulse Magnetizer #7-59 (NRCl built)
35	1	Vacuum molding processing stand
36	1	Leeds & Northrop potentiometer #8691
37	2	Welch vacuum fore-pumps
38	2	Bake-out ovens (complete with controls & pump stands)
39	2	Hydrogen purifiers
40	1	Combustible gas alarm, type EX-S
41	2	Controlled atmosphere radiation brazing stands (complete with power supply)
42	2	CVC leak detectors (with repair kits)
43	12	B.T. test power supplies (NRCI built)
44	5	Electron multiplier high voltage supplies
45	7	Varian Vac-Ion pump supplies
46	1	Phase lock Klystron R.F. source (NRCI built)
47	1	1MC to 100MC multiplier test jig (NRCI built)
48	2	1MC to 100MC multiplier chassis (NRCI built)
49	2	Plating tanks
50	1	Selectron electroplating power supply
51	1	Bantom Demineralizer
52	1	Bockel hot box
53	1	Dynalabs gaussmeter model D79

ITEM	QUAN.	DESCRIPTION
54	2	Cryogenic refrigerators
55	1	Electron multiplier vacuum processing assembly (complete NRCI built)
56	1	Rawson rotating coil gaussmeter
57	1	Electron multiplier vacuum test stand
58	2	C-Field supplies (NRCI built)
59	1	C-Field degausser (NRCI built)
60	1	2' x 5' Surface plate on stand
61	1	24" height gauge
62	1	12" height gauge
63	1	Black-Hawk pump with pinch-off tool
64	1	Vapor degreaser
65	2	Keithley Electrometers
66	2	S.W.E. R-1 Voltmeters
67	2	S.W.E. R-2 voltmeters
68	1	Parzen comparator
69	1	Tracor V.L.F. receiver with antenna
70	1	Universal B.T. vacuum apparatus complete with pump & controls
71	1	Lepel induction brazing machine (complete with jigs)
72	1	Electric furnace for hydrogen (compl. with controls and atmospheric control)
73	1 lot	Optical apparatus including monochrometer, lenses, prisms, etc.
74	1	Electron multiplier spotwelder complete with electrodes & power supply
75	1	Heliarc welder complete with electrodes
76	1 lot	Raw materials used in Atomichron program research; development and production, including all metals and unfinished parts, chemicals, and plastics.
77	1 lot	Finished and/or spare parts and components for beam tubes and electronics.

ITEM	QUANT.	DESCRIPTION
78	1 lot	Test and welding jigs, coil winders, various waveguide parts used in research, development and/or production.
79	52	NC 1001/1001A manuals
80	7	NC 1201 Manuals
81	21	NC 1501/NC1511 Manuals
82	25	NC1601 Manuals
83	22	MC 1601M Manuals
84	39	NC 2001/NC2011 Manuals
85	17	NC 3501 Manuals
86	1 lot	Blueprints, original drawings, and sketches related to Atomichron program
87	1 lot	Physics and chemistry books and magazines, and other library references related to the Atomichron program
88	1 lot	Atomichron technical files and memorandums

April 9, 1970

ASSIGNMENT

For Value Received, National Radio Company, Inc., a Massachusetts Corporation ("NRCI") hereby assigns to Louis C. Lerner all its right, title and interest in and to a certain non-interest bearing promissory note in the sum of $200,000 made by Frequency Electronics, Inc., a Delaware Corporation, to the order of NRCI and dated on or about February 3, 1969. This assignment is subject to the rights, if any, of the Middlesex Bank, NA of Everett, Massachusetts. This assignment is without warranties and without recourse in any event.

NATIONAL RADIO COMPANY, INC.

BY Roy E Hanson

President

Accepted by:

Louis C. Lerner

Consented to:

Middlesex Bank, NA

Middlesex Bank
NATIONAL ASSOCIATION

John A. Lynch
Vice President

Executive Offices,
Everett, Massachusetts 02149

January 20, 1971

Frequency Electronics, Inc.
3 Delaware Drive
New Hyde Park, New York 11040

Re: Note dated 3/3/69 - National Radio Co., Inc.
Payment of $12,000 - Due February 3, 1971

Gentlemen:

We are holders by assignment of the above-mentioned note. Please remit with your check payable to this bank in the amount of $12,000.

Very truly yours,

John A. Lynch

PRYOR, BRAUN, CASHMAN & SHERMAN
JUL 28 1971

March 3, 1970

Middlesex Bank, N.A.
431 Broadway
Everett, Massachusetts 02149

Gentlemen:

Relative to the renewal of the $270,000 by National Radio Company, Inc. on March 9, 1970, I agree that you will be paid at maturity (90 days) or at the maturity of any additional renewal through my efforts, if you so require.

Very truly yours,

Louis C. Lerner

Louis C. Lerner

1/14/75
ex 8- Hunt. - Middlesex Bank
WBF

Nov. 14, 1968

PLTF EXBT (1)

APR 19 1972

PRELIMINARY
MEMORANDUM

Re: Infringement of National Company Patents
by Hewlett Packard Model No. 5060A
Cesium Frequency Standard

The subject matter generally is that of molecular beam frequency standards. These standards employ a molecular beam tube as a microwave frequency passive resonator. By means of a servo loop system, a relatively low frequency oscillator is locked to a frequency which is related to the selected resonance frequency. In the system of concern here, the oscillator output signal is phase modulated to cause a microwave signal, obtained by frequency multiplication, to be swept past the selected resonance frequency. The beam output signal then provides information for locking the oscillator in relation to the selected resonance frequency.

National Company patents relating to this subject matter fall generally into two categories, those relating to systems, particularly frequency locking systems

for controlling an oscillator, and those relating to cesium beam resonators. Of the system patents, Zacharias et al, 2,972,115 and Mainberger 2,960,663 present possible infringement situations.

The Zacharias et al patent appears to present a clear case of infringment. Claims 3 and 8 are directed quite broadly to a molecular beam frequency standard in which the presence of a harmonic component in the detected beam signal is employed to provide an indication that lock on a resonance peak has been achieved. In the H-P 5060A system, the second harmonic of the modulating frequency in the beam signal is synchronously demodulated and an indicator light is energized if the amplitude of this detector signal falls below the preselected threshold. This detected harmonic signal can also be measured by means of a built-in meter.

The Mainberger patent includes claims which are directed to the use of the quadrature component of the fundamental modulating frequency in the beam signal as an indication that the controlled oscillator is locked on the

desired resonance peak, this peak being symmetrical, rather than being locked on one of the subsidiary peaks, these peaks being un-symmetrical. Locking on the desired peak produces substantially no quadrature component while locking on a subsidiary peak produces a significant quadrature component. The quadrature component is synchronously detected by means of a phase sensitive detector to which are applied both the signal to be detected and a reference signal. The reference signal is taken from the oscillator which frequency modulates the r.F. signal which is applied to the beam resonator.

The Mainberger system employs a single phase detector for obtaining measurements of either the in-phase or the quadrature components of the beam signal and the Mainberger claims all require "switching means" for applying "either" the in-phase beam signal or a beam signal which has been phase shifted 90° to the phase sensitive detector for detection. In the H-P 5060A, however, the in-phase and quadrature components of the beam signal are

synchronously detected simultaneously by means of respective phase sensitive detectors and an indicator is energized if either detected signal exceeds a respective preselected threshold. Accordingly, it can be seen that the H-P system employs the concept of using the absence of the quadrature component as an indication of lock on the proper resonance peak, although the particular structure employed is somewhat different and does not fully meet the claim language. The possibility does exist, however, that the H-P system might be held to be an equilavent construction and thus to infringe these claims. It appears that National would not be estopped from making such a contention since the particularly troublesome recitation, that is, the recitation of the "switching means", was not introduced by amendment in order to overcome references cited by the Examiner.

National also owns various other molecular beam system patents, i.e.

2,883,540	3,060,384
3,021,491	3,076,942
3,042,878	3,088,078

but these do not appear to be infringed by the H-P 5060A system.

National also owns a variety of claims directed to the molecular beam resonator itself. However, the operating and service manual which is, at present, our only source of information does not contain any detailed description of the tube construction and thus we have not been able to determine if there is infringement of these claims. In this category, the 3,258,713 patent is of interest in that it includes claims quite broadly covering the use of a niobium ionizer for the beam detector. It should be noted, however, that Paragraph 1-9 (i) of the H-P manual indicates that H-P was, at that time, using a tantalum ionizer. Patent No. 3,305,290 is also of interest in that it includes claims quite broadly covering the use of antimony for gettering cesium.

Patent No. 2,972,690 relates to an ion pump which appears to be suitable for use with a molecular beam resonator. The H-P cesium beam tube employs an ion pump

but, again, not enough is known of the exact construction to determine if there is infringement. Patents 3,058,023 and 3,328,633 relate to the molecular beam source or oven.

The Zacharias patent 2,972,115, discussed above with regard to its system claims, should also be considered with regard to the particular tube construction since claim 4 thereof is directed to a wave-guide construction which may possibly be used in H-P tube. Other claims in this patent are directed to a "U-shaped" magnetic shield which might possibly be present in the H-P tube. The H-P manual mentions that their tube is provided with inner and outer shields but does not describe their construction.

The economic or sales situation indicates that H-P can be expected to resist vigorously any attempt to collect royalties under these patents. Accordingly, there would be an advantage in choice of forum if National were to initiate litigation rather than put H-P on notice regarding its intent to assert these patents and thereby risk the initiation of a declaratory judgement action. It

is believed that the infringement of Claims 3 and 8 of the Zacharias et al patent is clear enough to justify such an action, even though the validity of these claims may be subject to attack on the basis of prior art which is analogous, though taken from outside of the molecular beam field of technology. The allegation of infringement under the Mainberger patent is also credible. Further, the initiation of litigation would permit the use of federal discovery procedures to answer questions left unresolved by the study of the 5060A manual and to investigate the construction of later versions of this type of equipment.

Debtor further agrees that it will not assert any defenses arising

Oa Power of Attorney, and Petition

Being duly sworn, I, Jerrold R. Zacharias

depose and say that I am a citizen of the United States residing at Newton, Massachusetts; that I have read the foregoing specification and claims and I verily believe I am the original, first, and joint inventor of the invention or discovery in Molecular Beam Apparatus (with Joseph H. Holloway and Eugene F. Grant)

described and claimed therein; that we do not know and do not believe that this invention was ever known or used before our invention or discovery thereof, or patented or described in any printed publication in any country before our invention or discovery thereof, or more than one year prior to this application, or in public use or on sale in the United States for more than one year prior to this application; that this invention or discovery has not been patented in any country foreign to the United States on an application filed by us or our legal representatives or assigns more than twelve months before this application; and that no application for patent on this invention or discovery has been filed by us or our representatives or assigns in any country foreign to the United States.

And I hereby appoint Kenway, Jenney, Witter & Hildreth, a firm composed of Herbert W. Kenway, Melvin R. Jenney, Lawrie L. Witter, Richard R. Hildreth, Herbert P. Kenway, Robert J. Keating, L. William Bertelsen, III and Jeremiah Lynch, of 24 School Street, Boston, Massachusetts, Registration No. 15962, my attorneys with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent Office connected therewith.

Wherefore I pray that Letters Patent be granted to us for the invention or discovery described and claimed in the foregoing specification and claims, and I hereby subscribe my name to the foregoing specification and claims, oath, power of attorney, and this petition, this 23rd day of October, 19 57.

Inventor Jerrold R. Zacharias.
First Name Middle Initial Last Name

Post Office Address 77 Massachusetts Avenue
Cambridge 39, Massachusetts

Commonwealth of Massachusetts
County of Middlesex } ss

Before me personally appeared Jerrold R. Zacharias
to me known to be the person described in the above application for patent, who signed the foregoing instrument in my presence, and made oath before me to the allegations set forth therein as being under oath, on the day and year aforesaid.

Rose A. Sayer
Notary Public

SEAL

This form may be executed only when attached to a complete application as the last page thereof.

29 463

BEST COPY AVAILABLE

Oath, Power of Attorney, and Petition

Being duly sworn, I, Joseph H. Holloway

depose and say that I am a citizen of the United States residing at

Woodside Road, Topsfield, Mass.; that I have

read the foregoing specification and claims and I verily believe I am the original, first, and joint inventor of the

invention or discovery in Molecular Beam Apparatus (with Jerrold R. Zacharias and Eugene F. Grant)

described and claimed therein; that I do not know and do not believe that this invention was ever known or used before my invention or discovery thereof, or patented or described in any printed publication in any country before my invention or discovery thereof, or more than one year prior to this application, or in public use or on sale in the United States for more than one year prior to this application; that this invention or discovery has not been patented in any country foreign to the United States on an application filed by me or my legal representatives or assigns more than twelve months before this application; and that no application for patent on this invention or discovery has been filed by me or my representatives or assigns in any country foreign to the United States.

And I hereby appoint Kenway, Jenney, Witter & Hildreth, a firm composed of Herbert W. Kenway, Melvin R. Jenney, Lawrie L. Witter, Richard R. Hildreth, Herbert P. Kenway, Robert J. Keating, L. William Bertelsen, III and Jeremiah Lynch, of 24 School Street, Boston, Massachusetts, Registration No. 15962, my attorneys with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent Office connected therewith.

Wherefore I pray that Letters Patent be granted to me for the invention or discovery described and claimed in the foregoing specification and claims, and I hereby subscribe my name to the foregoing specification and claims, oath, power of attorney, and this petition, this 25th day of October, 19 57.

Inventor Joseph (First Name) H. (Middle Initial) Holloway (Last Name)

Post Office Address c/o National Co. Inc.
61 Sherman Street
Malden, Massachusetts

Commonwealth of Massachusetts
County of Middlesex } ss

Before me personally appeared Joseph H. Holloway
to me known to be the person described in the above application for patent, who signed the foregoing instrument in my presence, and made oath before me to the allegations set forth therein as being under oath, on the day and year aforesaid.

Frances L. Thompson
Notary Public

SEAL

This form may be executed only when attached to a complete application as the last page thereof.

30

BEST COPY AVAILABLE

Oath, Power of Attorney, and Petition

Being duly sworn, I, Eugene F. Grant

depose and say that I am a citizen of the United States residing at Marblehead, Massachusetts that I have read the foregoing specification and claims and I verily believe I am the original, first, and joint inventor of the invention or discovery in Molecular Beam Apparatus (with Jerrold R. Zacharias and Joseph H. Holloway)

described and claimed therein; that I do not know and do not believe that this invention was ever known or used before my invention or discovery thereof, or patented or described in any printed publication in any country before my invention or discovery thereof, or more than one year prior to this application, or in public use or on sale in the United States for more than one year prior to this application; that this invention or discovery has not been patented in any country foreign to the United States on an application filed by me or my legal representatives or assigns more than twelve months before this application; and that no application for patent on this invention or discovery has been filed by me or my representatives or assigns in any country foreign to the United States.

And I hereby appoint Kenway, Jenney, Witter & Hildreth, a firm composed of Herbert W. Kenway, Melvin R. Jenney, Lawrie L. Witter, Richard R. Hildreth, Herbert P. Kenway, Robert J. Keating, L. William Bertelsen, III and Jeremiah Lynch, of 24 School Street, Boston, Massachusetts, Registration No. 15962, my attorneys with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent Office connected therewith.

Wherefore I pray that Letters Patent be granted to me for the invention or discovery described and claimed in the foregoing specification and claims, and I hereby subscribe my name to the foregoing specification and claims, oath, power of attorney, and this petition, this 25th day of October, 1957.

Inventor Eugene F. Grant
First Name Middle Initial Last Name

Post Office Address c/o National Co. Inc.
61 Sherman Street
Malden, Massachusetts

Commonwealth of Massachusetts
County of Middlesex } ss

Before me personally appeared Eugene F. Grant
to me known to be the person described in the above application for patent, who signed the foregoing instrument in my presence, and made oath before me to the allegations set forth therein as being under oath, on the day and year aforesaid.

SEAL

George E. Foss
Notary Public

This form may be executed only when attached to a complete application as the last page thereof.

ADDRESS ONLY
THE COMMISSIONER OF PATENTS
WASHINGTON 25, D. C.

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

All communications regarding this application should give the serial number, date of filing and name of the applicant

Paper No. 3

Kenway, Jenney, Witter
and Hildreth
24 School Street
Boston, Mass.

Applicant: Jerrold R. Zacharias et al	
Ser. No. 695,104	FILED APR 30 1958
Filed Oct. 29, 1957	
For MOLECULAR BEAM APPARATUS	CLASS. 324

Please find below a communication from the EXAMINER in charge of this application.

Robert C. Watson
Commissioner of Patents.

This application has been examined.

References applied:

Norton 2,808,510 Oct. 1, 1957 250-36-19G
(Filed Jan. 26, 1955)

Atomic Clocks by Lyons in Scientific American Vol. 196 No. 2
Feb. 1957, pages 71-82 250-36-19G

Claims 1-12 are present in this application.

In Figure 1, the numerical value 9180 lacks the abbreviation --MC--. In Figure 2 the generator of section 20 lacks the identifying numeral 14. Applicant has the burden of checking the specification for additional informalities. In claim 12, line 2, the last letter of the word "transitio" is missing and should be supplied. The electron multiplier anode should be identified in the drawing.

Claims 1 through 12 are present in this application.

Claims 7 and 12 are rejected as being indefinite since it is not clear from the description of the operation how the second harmonic can supply the warning to the Warning Indicator of Figure 1 when the beam fails, see page 22, since

the response pattern of Figure 4 is dependent on the beam. How can the second harmonic be supplied from tube 128 in the absence of a beam.

Claims 1 through 12 are rejected as being unpatentable over Norton, 2,808,510 or the above cited article entitled "Atomic Clocks" in the Scientific American. Norton shows a tubular sealed section enclosing and protecting a cesium beam from the effects of the atmosphere. Magnets A and B are shown schematically and if the applied magnetic field is large then it is to be expected that the size of the magnets would be constructed so that most of the magnet would be located outside of and sealed to the tubular section. Indicator 26 may be utilized to indicate correct operation. The article entitled Atomic Clocks teaches the operation of a frequency control system utilizing a cesium beam with the necessary structure.

It is assumed from the oath that the device shown on page 79 of the reference article was not sold or in commercial use at a date more than twelve months prior to the date of this application.

All the claims are rejected.

JKominski:cdj

John E Lady
Examiner

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Claim 8 is directed to the specific construction used herein for the beam tube, and it is believed allowable over both the Norton and the Scientific American article. Neither of these references disclose a specific construction applicable to molecular beam devices for use as frequency standards. Both deal only with the general theory of operation of molecular beam devices, showing such constructions as are necessary for an explanation in schematic form. Applicants on the other hand have provided a structure which is commercially practicable and useful. The claims in this application are generally directed to this improved structure and claim 8 is specific to this structure. Claim 9 is dependent on claim 8 and is allowable for similar reasons.

Claim 10, is similar to claim 5 except that it omits the specification of the means utilized to produce the high frequency field. Claim 11 is dependent on claim 10 and adds thereto that the means for producing the high frequency field including the two spaced cavities but also adds the limitation that the shield surrounds both cavities and waveguides. Claim 12 is similar to claim 7 but is more specific to the warning indicator.

It is quite clear that none of the apparatus defined by any of the claims now in this case is disclosed by either of the references cited. Accordingly, all claims now in the application are believed allowable.

With respect to the last paragraph of the Examiner's action, none of the constructions claimed herein were included in any devices sold or in commercial use more than one year prior to the filing date of this application.

An early allowance is respectfully solicited.

Respectfully submitted,

KENWAY, JENNEY, WITTER & HILDRETH

By J.R. Jenney

44

er Securities

...official quotations are the N. A. S. D. ...practical truths by sponsor or issuer.

T COMPANIES

OUT-OF-TOWN

NEWARK | PHILADELPHIA

HUDSON COUNTY

BOSTON | CHICAGO

SAN FRANCISCO

DETROIT | PITTSBURGH

NADIAN BONDS

N. Y. STATE BONDS

Canadian Banks

PREFERREDS

ITY BONDS

DEBENTURES

MORTGAGE

ATOM TIMEPIECE DISPLAYED HERE

Clock, to Sell for $50,000, Weighs 500 Pounds and Cost Million to Build

By WILLIAM L. LAURENCE

The first practical atomic clock, the most accurate time-measurer in existence, was demonstrated here yesterday.

The clock's "pendulum" is the cesium atom, which oscillates at a never changing frequency at the rate of 9,192,631,830 megacycles (millions of cycles) a second. The cesium atom, enmeshed in a vacuum tube to serve in the manner of a radio transmitter, is made to broadcast its signal to a device serving as a radio receiver, vibrating at the same frequency.

The device is to be marketed for $50,000.

The atomic clock, named Atomichron, tells time by tuning in on the characteristic frequency of the cesium atom in the vacuum tube. When the receiving device vibrates at the same frequency as the cesium atom it proves the fact in the same manner as does an ordinary radio when it is properly tuned to a desired frequency.

The atomic clock is the fruition of years of intensive research at a cost of a million dollars by the National Company, Inc., of Malden, Mass., the company is a pioneer in basic electronic research on the production of electromagnetic waves and in the development of communication receivers.

The demonstration was held at the Overseas Press Club.

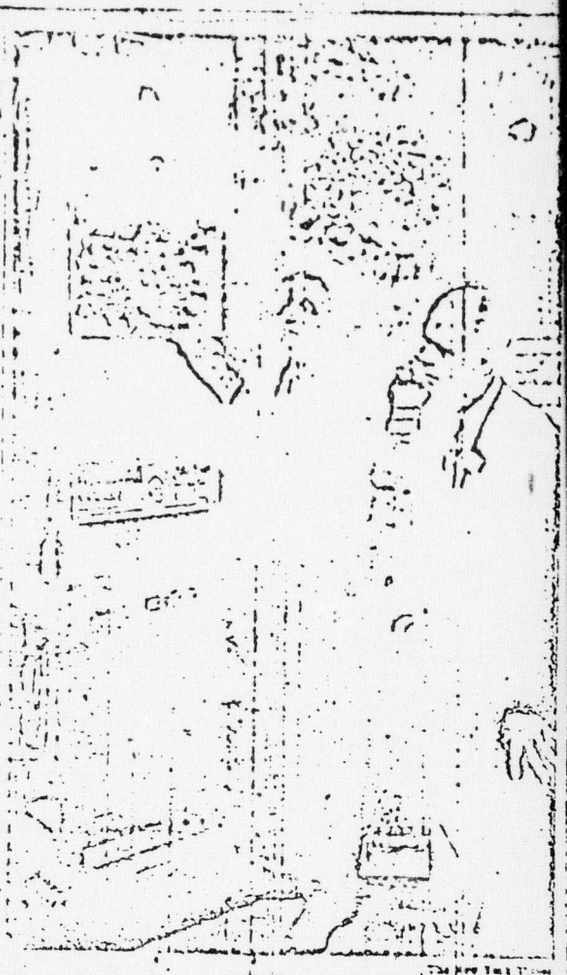
The atomic clock is based on fundamental discoveries made some fifteen years ago by Prof. I. I. Rabi of Columbia University, who won the Nobel Prize in physics for 1944 for those pioneer investigations into the inner cores, or nuclei, of atoms.

All atoms, it had been found, are minute broadcasting stations, with each particular atom sending out messages on characteristic frequencies running in the thousands and millions of megacycles. Professor Rabi developed methods for tuning in on these atomic broadcasts and for determining the frequencies of their vibrations.

Rabi Outlined Blueprint

Early in 1945 Professor Rabi outlined a blueprint for using the atomic frequencies as reliable cosmic pendulums in an atomic clock that would tell time infinitely more accurately than any time-measuring device conceivable. The National Bureau of Standards in Washington actually developed laboratory models of such atomic clocks, but the Atomichron demonstrated yesterday was the first practical device ever to offer a degree of accuracy and stability never before obtained commercially.

The Atomichron was developed by the National Company under the direction of Dr. Richard T. Daly, physicist, and Prof. Jerrold R. Zacharias, head of the physics department at M. I. T. Professor Zacharias is also chairman of the scientific advisory board of the Air Force.



The New York Times

ATOMIC CLOCKWORK: Prof. Jerrold R. Zacharias, left, of M. I. T. and Dr. Richard T. Daly of National Company, Inc., with 51-inch-tall cabinet that houses the works of the Atomichron. A clock dial may be attached to tell time with accuracy within five seconds in 300 years. Device has as its "pendulum," the vibrations of the cesium atom, which vibrates at the rate of 9,192,631,830 megacycles a second.

...ental long-range navigation system called "Navarho" (pronounced Nav-a-row). The system is designed to give distance and bearing information, with respect to a ground station, to an unlimited number of aircraft within a radius of 2,000 miles.

Expected operational accuracy of it was said, is 2 per cent in distance at 2,000 nautical miles. Distance is obtained by a pulse combination of two synchronized frequencies, one on the ground and one in the aircraft. The data are displayed on indicators in the cockpit of the aircraft.

With Navarho, the pilot will be able to tune in on the Air Force's Airport radio station on the East Coast when he takes off from California, and keep his radio set on it all the way to New York or even the Azores, it was said.

Antibiotics Sessions Slated

WASHINGTON, Oct. 3 (AP)... cent discoveries in the field of ... Antibiotics will be discussed by ... medical scientists from the United ...

STATE ALLOTS FLOOD AID

Six Counties Share $246,241 for Damage Last Year

ALBANY, Oct. 3 (AP)—The State Public Works Department announced today allocation of $246,241 in special state aid for repair of flood-damaged facilities in six counties.

The money was apportioned from a one and one-half million dollar appropriation set aside by the 1956 Legislature to help communities damaged by last year's floods.

Following is the list allocated today, by county and community:

Green—Catskill, $2,000; and Town of Windham, $501; Orange—Newburgh, $2,000; Schoharie—Town of Gallatin, $1,250; Town of Seward, $1,000; and Town of Sharon, $1,250; Sullivan—Monticello, $1,121; United Town of Callicoon, $1,000, and Town of Delaware, $1,000; Ulster—Town of Shandaken, $1,250; Town of Saugerties, $1,000, and Town of Hurley, $1,000.

EXHIBIT "5" 140

AND UTILITIES

Its Uses Suggested

The atomic clock promises to have great usefulness in radio communication, in all processes requiring the most accurate timing, in navigation of both ships and airplanes and also in guided missiles. It is also expected to become a highly useful instrument in fundamental studies in physics including more accurate determination of the velocity of light and the checking of some of the basic tenets of the Einstein Relativity Theory.

The Astrochron, it was disclosed, is already being used by the Air Force in its experi-

ARRIVAL OF BUYERS

Out-of-Town Exchanges

MIDWEST | MIDWEST | MIDWEST | MIDWEST | SAN | FRAN

141

71

Middlesex Bank
NATIONAL ASSOCIATION

John A. Lynch
Vice President

Executive Offices,
Everett, Massachusetts 02149

August 12, 1970

Frequency Electronics, Inc.
3 Delaware Drive
New Hyde Park, New York 11040

Gentlemen:

We have enclosed your paid note dated February 3, 1969 in the amount of $200,000.

We want to thank you very much for your prompt payment of this obligation.

Very truly yours,

John A. Lynch

Enclosure

72

Middlesex Bank
NATIONAL ASSOCIATION

John A. Lynch
Vice President

Executive Offices,
Everett, Massachusetts 02149

July 20, 1970

Frequency Electronics, Inc.
3 Delaware Drive
New Hyde Park, New York 11040

RE: Note dated 2/3/69
National Radio Co., Inc.
Amount $200,000
Due August 3, 1970

Gentlemen:

We are holders by assignment of the above-mentioned note. Please remit with your check by August 3, 1970 in the amount of $200,000.

Very truly yours,

John A. Lynch

Middlesex Bank
NATIONAL ASSOCIATION

John A. Lynch
Vice President

Executive Offices,
Everett, Massachusetts 02149

January 20, 1970

Frequency Electronics, Inc.
3 Delaware Drive
New Hyde Park, New York 11040

Re: Note dated 12/3/69 to
National Radio Co., Inc.

Gentlemen:

We are holders by assignment of the above-mentioned note. Please remit with your check by February 3, 1970 in the amount of $30,000.

Very truly yours,

John A. Lynch

ASSIGNMENT OF TRADEMARK

Whereas, National Radio Company, Inc. a Massachusetts corporation, having its principal office at 111 Washington Street, Melrose, Massachusetts, has adopted, used and is using a certain trademark which is registered in the United States Patent Office, Registration #653,065, dated October 15, 1957, and

Whereas, Frequency Electronics, Inc., a Delaware corporation, having its office at 3 Delaware Drive, New Hyde Park, New York, is desirous of acquiring said trademark and the registration thereof,

Now Therefore, for good and valuable consideration, the receipt of which is hereby acknowledged, said National Radio Company, Inc. hereby assigns unto the said Frequency Electronics, Inc. all right, title and interest in and to the said trademark, together with the goodwill of the business symbolized by the trademark and the registration thereof, #653,065.

Notice is hereby given that the said trademark assigned hereunder is subject to a security interest in favor of said National Radio Company, Inc. under the Uniform Commercial Code.

In addition and not in limitation of the foregoing, National Radio Company, Inc. hereby assigns all its right, title and interest in and to the tradename "Atomichron" to said Frequency Electronics, Inc., said tradename to be subject to the aforesaid security interest.

In Witness Whereof, National Radio Company, Inc. hereto sets its hand and seal this 31st day of January, 1969.

NATIONAL RADIO COMPANY, INC.

By Ray E Horner

Commonwealth of Massachusetts)
: SS
Middlesex County)

On this 31st day of January, 1969, before me personally came Ray E. Horner to me known, who being by me duly sworn, did depose and say that he is the Executive Vice-President of the company described as the assignor in the foregoing assignment; that as such he executed said assignment for and on behalf of said company and that he was duly authorized so to do.

Richard Drake
Notary Public

Middlesex Bank, N.A.

- Tickler -

Index E

March 1, 1971

Mr. Louis C. Lerner
Lerner & Co., Inc.
10 Post Office Square
Boston, Massachusetts 02109

Attention: Mr. Steven Lerner

Dear Mr. Lerner:

We have enclosed the following:

1. Paid note dated August 17, 1970 for $200,000.
2. Advice of debit dated February 24, 1971 for $153,282.62.
3. Frequency Electronics, Inc. note dated February 3, 1969 for $325,000 on which the balance is $283,000. This is being returned without recourse and without warranties, as we have no further interest.
4. Underlying documentation relating to No. 3 including Security Agreement and Financing Statements.
5. Copy of letter of transmittal to the First National Bank of Boston.

We will need a letter giving us notice to credit proceeds of the Time Open Account to the checking account.

This should complete the transaction which worked out very satisfactorily. We thank you very much.

Very truly yours,

John A. Lynch

1/10/75
EX 10 - Client
MIDDLESEX BANK
MBJ

...ment"), made this 3rd day of ~~January~~ 1969 under the laws of the state of Massachusetts

BETWEEN Frequency Electronics, Inc. ("FEI"), a Delaware corporation, herein called the Debtor

whose business address is (if none, write "none") 3 Delaware Drive, New Hyde Park, New York

and National Radio Company, Inc. ("NRCI"), a Massachusetts corporation, herein called the Secured Party

whose address is 111 Washington Street, Melrose, Massachusetts

WITNESSETH:

To secure the payment of an indebtedness in the amount of $ 525,000.00 payable as follows:

$200,000 - As more fully set forth in a certain promissory note, the text of which is attached to a "Purchase and Sale Agreement" relating to the "Atomichron", so called, said Agreement being between the Debtor and the Secured Party; said promissory note being Exhibit "C" to said Agreement, the terms and provisions of said promissory note being incorporated herein by reference.

$325,000 - As more fully set forth in a promissory note, the text of which is attached to a "Purchase and Sale Agreement" relating to the "Atomichron", so called, said Agreement being between the Debtor and the Secured Party; said promissory note being Exhibit "D" to said Agreement, the terms and provisions of said promissory note being incorporated herein by reference.

as evidenced by a note or notes of even date herewith, and also to secure any other indebtedness or liability of the Debtor to the Secured Party direct or indirect, absolute or contingent, due or to become due, now existing or hereafter arising, including all future advances or loans which may be made at the option of the Secured Party, (all hereinafter called the "obligations") Debtor hereby grants and conveys to the Secured Party a security interest in, and mortgages to the Secured Party,

(a) the property described in the schedule herein (hereinafter called the collateral), which collateral the Debtor represents will be used primarily

☐ for personal, family or household purposes ☐ in farming operations ☒ in business or other use

(b) all property, goods and chattels of the same classes as those scheduled, acquired by the Debtor subsequent to the execution of this agreement and prior to its termination

(c) all proceeds thereof, if any,

(d) all increases, substitutions, replacements, additions and accessions thereto.

1. DEBTOR WARRANTS, COVENANTS AND AGREES AS FOLLOWS:

PAYMENT 1a To pay and perform all of the obligations secured by this agreement according to their terms.

DEFEND TITLE 1b To defend the title to the collateral against all persons and against all claims and demands whatsoever, which collateral, except for the security interest granted hereby, is lawfully owned by the Debtor and is now free and clear of any and all liens, security interests, claims, charges, encumbrances, taxes and assessments except as may be set forth in the schedule.

ASSURANCE OF TITLE 1c On demand of the secured party to do the following: furnish further assurance of title, execute any written agreement or do any other acts necessary to effectuate the purposes and provisions of this agreement, execute any instrument or statement required by law or otherwise in order to perfect, continue or terminate the security interest of the Secured Party in the collateral and pay all costs of filing in connection therewith.

POSSESSION 1d ~~To safeguard the collateral during the existence of this agreement and not to sell, exchange, assign, loan, deliver, lease, mortgage or otherwise dispose of same without the written consent of the Secured Party~~

LOCATION ~~To keep the collateral at the location specified in the schedule and not to remove same (except in the usual course of business) to a temporary premises without the prior written consent of the Secured Party.~~

LIENS 1f To keep the collateral free and clear of all liens, charges, encumbrances, taxes and assessments.

TAXES 1g To pay, when due, all taxes, assessments and license fees relating to the collateral.

REPAIRS 1h To keep the collateral, at Debtor's own cost and expense, in good repair and condition and available for inspection by the Secured Party at all reasonable times.

INSURANCE 1i To keep the collateral fully insured against loss by fire, theft and other casualties, Debtor shall give immediate written notice to the Secured Party and to insurors of loss or damage to the collateral and shall promptly file proofs of loss with insurors.

2. THE PARTIES FURTHER AGREE (SUBJECT to the said Agreement which shall control)

NON-WAIVER 2a Waiver of or acquiescence in any default by the Debtor, or failure of the Secured Party to insist upon strict performance by the Debtor of any warranties or agreements in this security agreement, shall not constitute a waiver of any subsequent or other default or failure.

NOTICES 2b Notices to either party shall be in writing and shall be delivered personally or by mail addressed to the party at the address herein set forth or otherwise designated in writing.

LAW APPLICABLE 2c The Uniform Commercial Code shall govern the rights, duties and remedies of the parties and any provisions herein declared invalid under any law shall not invalidate any other provision or this agreement.

DEFAULT 2d The following shall constitute a default by Debtor (~~subj to the said Agreement~~

non-payment Failure to pay the principal or any installment of principal or of interest on the indebtedness or any notes when due. Failure

violation by Debtor to comply with or perform any provision of this agreement. False or misleading representations or warranties made

misrepresent by Debtor in connection with this agreement. Subjection of the collateral to levy of execution or other judicial process.

levy - insolv Commencement of any insolvency proceeding by or against the Debtor. Death of the Debtor. Any reduction in the value of the

death collateral or any act of the Debtor which imperils the prospect of full performance or satisfaction of the Debtor's obligations

impairment of security herein.

REMEDIES ON DEFAULT 2e Upon any default of the Debtor and at the option of the Secured Party, the obligations secured by this agreement shall immediately become due and payable in full without notice or demand and the Secured Party shall have all the rights, remedies and privileges with respect to repossession, retention and sale of the collateral and disposition of the proceeds as are accorded by the applicable sections of the Uniform Commercial Code respecting "Default".

acceleration

assembling collateral Upon any default and upon demand, Debtor shall assemble the collateral and make it available to the Secured Party at the place and at the time designated in the demand.

attorneys' fees etc. Upon any default, the Secured Party's reasonable attorneys' fees and the legal and other expenses for pursuing, searching for, receiving, taking, keeping, storing, advertising, and selling the collateral shall be chargeable to the Debtor.

deficiency The Debtor shall remain liable for any deficiency resulting from a sale of the collateral and shall pay any such deficiency forthwith on demand.

monies advanced If the Debtor shall default in the performance of any of the provisions of this agreement on the Debtor's part to be performed, Secured Party may perform same for the Debtor's account and any monies expended in so doing shall be chargeable with interest to the Debtor and added to the indebtedness secured hereby.

FINANCING STATEMENT 2f The Secured Party is hereby authorized to file a Financing Statement.

CAPTIONS 2g The Captions are inserted only as a matter of convenience and for reference and in no way define, limit or describe the scope of this agreement nor the intent of any provision thereof.

BEST COPY AVAILABLE

Debtor further agrees that it will not assert any defenses arising between it and the Secured Party against any assignee of this instrument.

The terms, warranties and agreements herein contained shall bind and inure to the benefit of the respective parties hereto, and their respective legal representatives, successors and assigns.

The gender and number used in this agreement are used as a reference term only and shall apply with the same effect whether the parties are of the masculine or feminine gender, corporate or other form, and the singular shall likewise include the plural.

This agreement may not be changed orally.

IN WITNESS WHEREOF, the Parties have respectively signed and sealed these presents the day and year first above written.

FREQUENCY ELECTRONICS, INC.

By Kent M. Klaeman

NATIONAL RADIO COMPANY, INC.

By Ray E. Hansen

SCHEDULE

Describe items of collateral, the address where each item will be located and describe any prior liens, etc., and the amounts due thereon. If items are crops or goods affixed or to be affixed to real estate describe the real estate and state the name and address of the owner of record thereof.

Items	*Location, etc.*
The items of Inventory, Machinery and Equipment and Data, being items #1 through 88 on Exhibit "A" hereto attached and made a part hereof. (See "Oversize File") Also, the Patents, Trademark and Tradename listed on Exhibit "B" hereto attached and made a part Hereof.	3 Delaware Drive New Hyde Park, New York

The chief place of business of the Debtor, if other than stated in this agreement, is:

GUARANTEE

The undersigned guarantees prompt and full performance and payment according to the tenor of the within agreement, to the holder hereof, and, in the event of default, authorizes any holder hereof to proceed against the undersigned, for the full amount due including reasonable attorneys' fees, and hereby waives presentment, demand, protest, notice of protest, notice of dishonor and any and all other notices or demand of whatever character to which the undersigned might otherwise be entitled. The undersigned further consents to any extension granted by any holder and waives notice thereof. If more than one guarantor, obligation of each shall be joint and several.

WITNESS the hand and seal of the undersigned this day of 19 .

.....(L.S.)

Address.....

Security Agreement
CHATTEL MORTGAGE

TO

D,

477

...Ben. file UCC 1 (see UCC §9-401)
...NSUMER GOODS OR FARM CONNECTED COL-
...AL:
...with filing officer in county of debtor's
...dence.
...esident debtor: Dept. of state: if debtor has a place
...siness in only one county in N. Y., also with fil-
...officer in such county in N. Y.
...Dept. of state and also with filing officer in county
...re said, on which crops are grown, lies.
...URES attached to realty: in county where land lies.
OTHER CASES: Dept. of state: if debtor has a
...e of business in only one county in N. Y., also
...a filing officer in such county in N. Y.; also
...filing officer in N.Y.C. for the county: Register of the county
...where in state, the county clerk.

...NSUMER GOODS OR FARM CONNECTED COL-
...AL:
...lerk of county of debtor's residence.
...resident debtor, in county where goods are kept.
...resident debtor, land lies.
...URES attached to realty: with register of county
...re land lies or with county clerk if no register.
OTHER COLLATERAL: with secretary of state.

...TIXTURES attached to realty: with clerk of town
...where land lies.
OTHER COLLATERAL: with secretary of state.

INVENTORY OF COMPONENTS, EQUIPMENTS, RAW MATERIAL AND DOCUMENTATION RELATED TO ATOMICHRON

ITEM	QUAN.	DESCRIPTION
1	7	NC 3501 Atomichrons
2	8	NC 6201-G3 B.T. complete
3	2	NC 1500 B.T. test beds (NRCI built)
4	2	NC 1601 Atomichron carcasses
5	1	NC 1501 Atomichron carcass
6	3	NC 1001 N.T. complete
7	2	NC 2001 B.T. complete
8	1	NC 1601 B.T. complete
9	6	NC 2001 Atomichron carcasses
10	1	NC 3601 Mock-up
11	1	NC 3501 Engineering carcass
12	5	NC 3701 Pilot run Atomichrons
13	1	GEC (NC 3701) Engineering model Atomichron
14	20	NC 3701 Atomichrons (unassembled)
15	1	Engineering model F.M. test set
16	5	NC 1001 B.T. envelopes
17	3	NC 2001 B.T. envelopes
18	5	NC 1601 B.T. envelopes
19	4	NC 1001 Atomichron carcasses
20	2	NC 6201 Alignment jigs
21	2	NC 6201 B.T. waveguide brazing jigs
22	6	NC 6201 B.T. envelopes
23	1	P.E.M. Life test beam tube with power supply
24	4	Engineering pump stands (incomplete)
25	2	Preproduction type P.E.M. B.T. 1963 17"

26	1	17" Single cavity B.T. 1960
27	1	A.S.D. Prototype 1962
28	1	P.E.M. Prototype 1962
29	1	Missle born prototype 1958
30	1	Single cavity economy 17" 1959
31	1	Phase-lock Klystron waveguide test jig
32	2	LFE Model 814 ultra-stable microwave oscillator
33	1	Waveguide measuring set (compl. with jigs, stubs, et
34	1	Impulse Magnetizer #7-59 (NRCl built)
35	1	Vacuum molding processing stand
36	1	Leeds & Northrop potentiometer #8691
37	2	Welch vacuum fore-pumps
38	2	Bake-out ovens (complete with controls & pump stands
39	2	Hydrogen purifiers
40	1	Combustible gas alarm, type EX-S
41	2	Controlled atmosphere radiation brazing stands (complete with power supply)
42	2	CVC leak detectors (with repair kits)
43	12	B.T. test power supplies (NRCI built)
44	5	Electron multiplier high voltage supplies
45	7	Varian Vac-Ion pump supplies
46	1	Phase lock Klystron R.F. source (NRCI built)
47	1	1MC to 100MC multiplier test jig (NRCI built)
48	2	1MC to 100MC multiplier chassis (NRCI built)
49	2	Plating tanks
50	1	Selectron electroplating power supply
51	1	Bantom Demineralizer
52	1	Boekel hot box
53	1	Dynalabs gaussmeter model D79

ITEM	QUAN.	DESCRIPTION
54	2	Cryogenic refrigerators
55	1	Electron multiplier vacuum processing assembly (complete NRCI built)
56	1	Rawson rotating coil gaussmeter
57	1	Electron multiplier vacuum test stand
58	2	C-Field supplies (NRCI built)
59	1	C-Field degausser (NRCI built)
60	1	2' x 5' Surface plate on stand
61	1	24" height gauge
62	1	12" height gauge
63	1	Black-Hawk pump with pinch-off tool
64	1	Vapor degreaser
65	2	Keithley Electrometers
66	2	S.W.E. R-1 Voltmeters
67	2	S.W.E. R-2 voltmeters
68	1	Parzen comparator
69	1	Tracor V.L.F. receiver with antenna
70	1	Universal B.T. vacuum apparatus complete with pump & controls
71	1	Lepel induction brazing machine (complete with jigs)
72	1	Electric furnace for hydrogen (compl. with controls a atmospheric control)
73	1 lot	Optical apparatus including monochrometer, lenses, prisms, etc.
74	1	Electron multiplier spotwelder complete with electrode & power supply
75	1	Heliarc welder complete with electrodes
76	1 lot	Raw materials used in Atomichron program research, development and production, including all metals and unfinished parts, chemicals, and plastics.
77	1 lot	Finished and/or spare parts and components for beam tubes and electronics.

78	1 lot	Test and welding jigs, coil winders, various waveguid parts used in research, development and/or production
79	52	NC 1001/1001A manuals
80	7	NC 1201 Manuals
81	21	NC 1501/NC1511 Manuals
82	25	NC1601 Manuals
83	22	MC 1601M Manuals
84	39	NC 2001/NC2011 Manuals
85	17	NC 3501 Manuals
86	1 lot	Blueprints, original drawings, and sketches related to Atomichron program
87	1 lot	Physics and chemistry books and magazines, and other library references related to the Atomichron program
88	1 lot	Atomichron technical files and memorandums

U.S. Patent No.	Title	Inventor	Date
2,883,540	Microwave Signal Generating System	E. F. Grant	April 21, 1959
2,960,663	Frequency Control Apparatus	W. A. Mainberger	Nov. 15, 1960
2,972,115	Molecular Beam Apparatus	J. R. Zacharias et al	Feb. 14, 1961
2,972,690	Ion Pump and Gauge	A. O. McCoubrey	Feb. 21, 1961
2,991,389	Cesium Ovens	E. F. Grant et al	July 4, 1961
2,994,836	Molecular Beam Apparatus	J. H. Holloway	Aug. 1, 1961
3,005,121	Beam Intensity Control System	J. George	Oct. 17, 1961
3,021,491	Frequency Control Apparatus for an Atomic Beam Tube	A. Orenberg	Feb. 13, 1962
3,034,078	Temperature Compensated Microwave Cavity	A. O. McCoubrey	May 8, 1962
3,042,878	Frequency Control Apparatus for an Atomic Beam Tube	A. Orenberg	July 3, 1962
3,058,023	Molecular Beam Source	J. George	Oct. 9, 1962
3,060,384	Molecular Beam Frequency Standard Incorporating Control of Static Field	A. O. McCoubrey	Oct. 23, 1962
3,060,385	Carbon-Monoxide Frequency Standard	F. W. Lipps, Jr. et al	Oct. 23, 1962
3,076,942	Molecular Beam Frequency Standard	J. H. Holloway et al	Feb. 5, 1963
3,080,519	Nuclear Maser	A. O. McCoubrey et al	March 5, 1963

U.S. Patent No.	Title	Inventor	Date
3,088,078	Frequency Control Apparatus for an Atomic Beam Tube	E. F. Grant et al	April 30, 1963
3,258,713	Cesium Beam Tube with Niobium Ionizer	J. George	June 28, 1966
3,305,290	Molecular Beam Cesium Getter	A. Ganssen et al	Feb. 21, 1967
3,323,633	Molecular Beam Tube	J. George	June 27, 1967

U.S. Trademark No.	Name	Date
653,065	"Atomichron"	Oct. 15, 1957

Tradename: Atomichron

MINUTES OF SPECIAL MEETING
OF
THE BOARD OF DIRECTORS
OF
FREQUENCY ELECTRONICS, INC.

A Special Meeting of the Board of Directors of Frequency Electronics, Inc. was held on January 21, 1969 at the Harvard Club, 27 West 44th Street, New York City, at 6:00 P.M.

There were present Messrs. Martin B. Bloch
Kent M. Klineman
John C. Ho
Abraham Lazar
Lawrence Bernhardt
Melvin Rubenstein
Peyton H. Knight

being all of the directors and a quorum.

Mr. Bloch acted as Chairman of the meeting and Mr. Klineman acted as Secretary.

The Minutes of the last meeting of the Board of Directors held on October 22, 1968 were presented to and unanimously adopted by the Board without change.

Mr. Klineman distributed copies of a letter agreement between National Radio Company, Inc. and the Company relative to the acquisition of National Radio Company, Inc.'s Atomichron line which outlined the terms and conditions of the

proposed purchase. A copy of the said letter was ordered annexed to the minutes of the meeting.

Mr. Bloch stated that a careful investigation of the National Radio atomic frequency standard indicated that the Company might capture approximately 30% of the available market for atomic frequency standards. Mr. Bloch estimated that the available market for this line might be approximately $22,000,000 over the next five to ten years. In addition, he estimated that the Company's costs relative to its anticipated $7,000,000 share of this market would be:

Total acquisition costs, including NRCI purchase -	$1,000,000
Manufacturing costs -	3,000,000
Sales costs -	350,000
Research and development -	500,000
Total	$4,850,000

In addition, Mr. Bloch stated that this $22,000,000 market did not include anti-collision system ground stations, each of which would acquire several atomic frequency standards.

A discussion next ensued as to the advisability of the proposed Atomichron purchase including the question of the Company's cash reserves, and whether its cash flow over

the next twelve to eighteen months would be impaired by this acquisition. After discussion, upon motion duly made, seconded and unanimously carried, it was

> RESOLVED, that the proper officers of the Corporation be and the same hereby are authorized and directed to take any and all necessary acts which may be required to consummate the acquisition of the Atomichron line in substantially the same form as set forth in the letter agreement between the Company and National Radio Company, Inc. attached to these minutes, and it was
>
> FURTHER RESOLVED, that such officers and directors be and the same hereby are authorized to make such changes in the said letter agreement as may be reasonable and appropriate.

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MINUTES OF SPECIAL MEETING
OF
THE BOARD OF DIRECTORS
OF
FREQUENCY ELECTRONICS, INC.

A Special Meeting of the Board of Directors of Frequency Electronics, Inc. was held on April 29, 1969 at the Harvard Club, 27 West 44th Street, New York City, at 6:30 P.M.

There were present Messrs. Martin B. Bloch
Kent M. Klineman
John C. Ho
Abraham Lazar
Lawrence Bernhardt
Melvin Rubenstein
Peyton H. Knight

being all of the directors and a quorum. Also present by invitation were Messrs. Harold E. Berritt and William Schlackman.

H

The President then reported on the progress of the Company's wholly-owned subsidiary, Atomichron, Inc., to which the Company had transferred all of the assets and properties acquired by the Company from National Radio Company, Inc. under Bill of Sale dated January 31, 1969. The Chairman then proposed that this Board ratify the aforesaid transfer of assets and properties to Atomichron, Inc. Upon motion duly made, seconded and unanimously carried, it was

> RESOLVED, that the transfer by this Corporation to Atomichron, Inc. of the assets and properties acquired by this Corporation from National Radio Company, Inc. under Bill of Sale dated January 31, 1969 is hereby ratified, approved and confirmed in all respects.

BEST COPY AVAILABLE

MINUTES OF SPECIAL MEETING
OF
THE BOARD OF DIRECTORS
OF
FREQUENCY ELECTRONICS, INC.

A Special Meeting of the Board of Directors of Frequency Electronics, Inc. was held on July 31, 1969 at the Harvard Club, 27 West 44th Street, New York City, at 7:00 P.M.

There were present Messrs. Martin B. Bloch
Kent M. Klineman
John C. Ho
Abraham Lazar
Lawrence Bernhardt
Melvin Rubenstein

being a majority of the directors and a quorum. Also present by invitation were Messrs. Harold E. Berritt and William Schlackman.

Mr. Bloch acted as Chairman of the meeting and Mr. Berritt acted as Secretary.

The Chairman then reported that the net earnings of the Company for the fiscal year ended April 30, 1969 were expected to be approximately $100,000. A discussion followed concerning the factors which contributed to the year's results.

I.

The Chairman noted that at the last meeting the Board had authorized the President of the Company to enter into detailed discussions with Mr. Clarence Lyon of Messrs. Kenway, Jenney & Hildreth concerning a possible patent infringement suit against Hewlett Packard Corporation. The Chairman reported that, in Mr. Lyon's opinion, the likelihood of such an action succeeding is high. After discussion, the President was authorized to retain said attorneys for the purpose of making a "cease and desist" demand on Hewlett Packard Corporation leaving for further consideration by the Board the decision of whether to institute formal legal action against Hewlett Packard Corporation.

MINUTES OF SPECIAL MEETING
OF
THE BOARD OF DIRECTORS
OF
FREQUENCY ELECTRONICS, INC.

A Special Meeting of the Board of Directors of Frequency Electronics, Inc. was held on the 19th day of March, 1970 at the Harvard Club, 27 West 44th Street, New York, New York at 6:30 p.m.

There were present Messrs. Martin Bloch
Lawrence Bernhardt
Kent M. Klineman
John C. Ho
Abraham Lazar

being a majority of the directors and a quorum. Also present was Mr. Harold E. Berritt.

The Chairman then advised the meeting of his most recent discussions with counsel regarding the Corporation's proposed patent infringement claims against Hewlitt Packard Corporation. After discussion, it was decided that the Corporation should proceed to institute an action to enforce such claims.

There being no further business to come before the meeting, upon motion duly made, seconded and unanimously carried, the meeting was ADJOURNED.

Harold E. Berritt
Secretary of the Meeting

MINUTES OF A SPECIAL MEETING
OF
THE BOARD OF DIRECTORS
OF
FREQUENCY ELECTRONICS, INC.

A Special Meeting of the Board of Directors of Frequency Electronics, Inc. was held on May 13, 1971, at the Harvard Club, 27 West 44th Street, New York, New York, at 6:30 p.m.

There were present Messrs. Martin B. Bloch
John C. Ho
Kent M. Klineman
Abraham Lazar
Lawrence Bernhardt

being all of the directors and a quorum. Also present were Mr. Harold E. Berritt, Secretary of the Corporation, and Mr Joel Keltz, Treasurer of the Corporation, and Messrs. William Schlackman and Stanley Shelowitz of Alexander Grant & Company.

Mr. Bloch acted as Chairman of the meeting, and Mr. Berritt acted as Secretary.

The minutes of the meetings of the Board of Directors held on July 27, 1970, November 10, 1970 and March 2, 1971 were presented to and unanimously adopted by the Board without change.

The Chairman then stated that the next order of business was to consider a discontinuance of research and development by this Corporation in connection with the "Atomichron" prod-

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uct and a write-off of existing costs incurred by the Corporation in connection with the acquisition and development of such product. After discussion, upon motion duly made, seconded and unanimously carried, the following resolutions were adopted:

WHEREAS, it is the judgment of management of this Corporation that continued development effort is necessary in order to bring the "Atomichron" product into a marketable condition; and

WHEREAS, although management believes that there is a future market for such product, the present market therefor has been severely affected by cut-backs in defense spending by the Federal Government; and

WHEREAS, cash flow problems and financial reverses by this Corporation in its operations make it impossible for this Corporation to commit the resources necessary to complete the development of such product; and

WHEREAS, in the absence of such continued development this Corporation cannot reasonably expect to recover from operations any of the costs incurred by it to date in the acquisition and development of such product line; and

WHEREAS, for the reasons stated above, it is, in the judgment of this Board of Directors, in the best interests of this Corporation to discontinue further research and development in connection with such product line and to write off existing costs incurred by this Corporation in connection

with the acquisition and development thereof; it is hereby:

RESOLVED, that this Corporation discontinue further research and development in connection with its "Atomichron" product line and write off all existing costs incurred by this Corporation in connection with the acquisition and development to date of such product line; and it is further

RESOLVED, that the officers and directors of this Corporation are hereby authorized and directed to take any and all such steps and execute any and all such documents on behalf of this Corporation as may, in their judgment, be necessary or appropriate to carry into effect the purposes and intent of the foregoing resolution.

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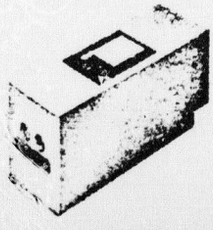
DEFENDANT
EXHIBIT
U. S. DIST. COURT
S. D. OF N. Y.

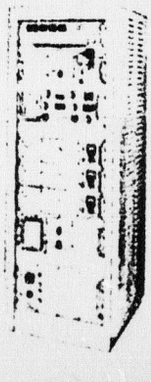
ANNUAL REPO

FISCAL YEAR 1971

FREQUENCY ELECTRONICS, INC.









To our shareholders:

"Inertia" is defined by Webster as the property of a body, which when in motion, keeps moving in the same direction, unless affected by some outside force. The inertia of Frequency Electronics during fiscal year 1971 resulted in a net loss of $1,799,339 and this negative direction is attributable to fiscal year 1970 at which time the Company reported its very first loss amounting to $184,825.

It became apparent to management, and especially to the Board of Directors, during February 1971 that drastic measures had to be initiated to change the course of Frequency Electronics.

First, a major reorganization of the company was effected allowing a reduction in personnel of twenty-five employees with a minimum impact on productivity.

Secondly, each employee was subjected to a salary reduction ranging from 3 to 15 percent, (your President was subjected to the largest salary reduction) and certain company benefits were eliminated.

Thirdly, certain company sponsored research and development programs were discontinued. This is further elaborated upon in this letter.

Additionally, other less essential general and administrative expenses such as advertising, travel, and participation in product shows were held to a minimum.

This will result in a company payroll reduction from $1.7 to 1.2 million and the operating overhead rate was reduced from 140% to 120% on an annual basis.

Moreover, the company has become much more selective regarding the procurements sought and negotiated.

Finally, a vastly improved monitoring and reporting system has been implemented relating to costs, milestones, shipping schedules, et al.

What Are The Results?

The first quarter of the present fiscal year has been profitable.

Contracts received during the first four months of this fiscal year total $1,312,000, which is most encouraging when one considers the generally poor business environment, and the fact that the company has become more selective.

Backlog has increased from 1.8 million to 2.4 million from May 1 to September 1, 1971.

The "action initiated" has done its job—effectively with dispatch—and company morale has never been higher.

As previously referenced, certain company sponsored research and development programs have been terminated, the most significant of which is the Cesium Beam Frequency Standard related to Atomichron. The sales resulting from this product have not been as fruitful as originally anticipated. Consequently, the product line of our Atomichron subsidiary has been integrated into the parent company and no further research and development efforts will be expended at this time. However, Frequency Electronics will continue to sell the Cesium Beam Frequency Standard previously developed. This decision was necessary since the operating loss of Atomichron was $381,124 and further research and development could not be supported. Consequently, a write off of the costs, as an extraordinary item attributable to research and development, inventory and patents, in the amount of $778,995 resulted in a total loss of $1,160,119, exclusive of income taxes, and is included in the total net loss.

We feel a corner has been turned giving Frequency Electronics a proper direction and a great effort is still required of your management on a continuing basis. We must and will remain constantly aware of our total commitment, and shall endeavor to build upon a deep and broad foundation a product line of profitability and quality.

My sincere appreciation goes out to my colleagues for their dedication and loyalty at a time when lesser men would abandon, and to the shareholders for their understanding.

Sincerely,

Martin B. Bloch
President

September, 1971

BOARD OF DIRECTORS:
Martin B. Bloch, *Chairman*
John C. Ho
Abraham Lazar
Kent M. Klineman
Lawrence Bernhardt
Bruce Balding

OFFICERS:
Martin B. Bloch, *President*
Abraham Lazar, *Executive Vice President*
John C. Ho, *Vice President*
Joel Keltz, *Treasurer & Ass't. Secretary*
Harold Berritt, *Secretary*

TRANSFER AGENT AND REGISTRAR:
Franklin National Bank
130 Pearl Street
New York, N.Y.

COUNSEL:
Pryor, Braun, Cashman and Sherman
410 Park Avenue
New York, N.Y.

AUDITORS:
Alexander Grant & Company
1185 Avenue of the Americas
New York, N.Y.

CONSOLIDATED BALANCE SHEET

April 30, 1971 and 1970

ASSETS	1971	1970
CURRENT ASSETS		
Cash	$ 144,796	$ 32,406
Marketable securities (Note J)	82,000	776,109
Accounts receivable		
Trade	652,731	905,111
Other	5,606	13,981
Refundable income taxes (Note F)	13,274	271,375
Inventories—at the lower of cost (specific and average) or market (less progress payments; 1971—$186,109; 1970—$171,918) (Note B)	775,726	1,165,361
Prepayments and other	24,921	16,911
Total current assets	1,699,054	3,181,254
FIXED ASSETS—AT COST (Note C)	968,164	941,932
Less accumulated depreciation and amortization	431,802	343,868
	536,362	598,064
DEFERRED CHARGES AND OTHER ASSETS		
Research and development costs (Note D)	70,868	477,083
Patent costs (Note D)	922	293,983
Cost in excess of net assets acquired (Note A)	64,302	58,446
Notes receivable from officer of subsidiary	10,000	10,000
Other deferred charges	9,409	33,371
Other assets	20,570	19,938
	176,071	892,821
	$2,411,487	$4,672,139

LIABILITIES		
CURRENT LIABILITIES		
Current maturities of long-term debt	$ 202,838	$ 379,682
Notes payable—bank	150,000	
Accounts payable—trade	379,974	456,138
Accrued liabilities		
Payroll	24,923	29,949
Taxes other than income	26,304	39,933
Other	14,371	15,007
Total current liabilities	798,410	920,709
DEFERRED INCOME TAXES (Note F)		156,539
LONG-TERM DEBT, NET OF CURRENT MATURITIES (Note E)	1,417,195	1,612,670
COMMITMENTS AND CONTINGENCIES (Note G)		
STOCKHOLDERS' EQUITY (Notes H, I and K)		
Convertible preferred stock—authorized 600,000 shares of $1 par value; no shares issued		
Common stock—authorized 2,000,000 shares of $1 par value; issued and outstanding, 1971—721,620 shares; 1970—717,620 shares	721,620	717,620
Additional paid-in capital	1,018,191	1,009,191
Retained earnings (deficit)	(1,477,212)	322,127
	262,599	2,048,938
Less 9,333 shares of common stock reacquired and held in treasury—at cost	66,717	66,717
	195,882	1,982,221
	$2,411,487	$4,672,139

The accompanying notes are an integral part of this statement.

CONSOLIDATED STATEMENT OF OPERATIONS

Years ended April 30, 1971 and 1970

	1971	1970
Income		
Net sales	$2,539,218	$3,275,137
Other income	43,758	15,185
	2,582,976	3,290,322
Costs and expenses		
Cost of sales	3,179,269	3,104,719
Selling and administrative expenses	477,379	509,796
Interest	124,184	63,632
	3,780,832	3,678,147
Loss before income taxes and extraordinary item	1,197,856	387,825
Income taxes (Note F)		
Refundable	(12,707)	(203,000)
Reduction in deferred tax credits resulting from current year loss carryforward	(94,847)	
	(107,554)	(203,000)
Loss before extraordinary item	1,090,302	184,825
Extraordinary item		
Termination of Atomichron product line development—net of applicable income taxes (Note D)	709,037	
NET LOSS	$1,799,339	$ 184,825
Average common shares outstanding	711,287	707,205
Per common share (Note L)		
Loss before extraordinary item	$1.53	$.26
Extraordinary item	1.00	
Net loss	$2.53	$.26

CONSOLIDATED STATEMENT OF ADDITIONAL PAID-IN CAPITAL

Years ended April 30, 1971 and 1970

	1971	1970
Additional paid-in capital—beginning of year	$1,009,191	$ 980,774
Proceeds in excess of par value of common stock		
Issued under stock option plans (1970—6,280 shares)		1,417
Issued upon exercise of warrants (18,000 shares)		27,000
Excess of fair market value over par value of common stock		
Issued upon acquisition of common stock of subsidiaries	9,000	
Additional paid-in capital—end of year	$1,018,191	$1,009,191

CONSOLIDATED STATEMENT OF RETAINED EARNINGS (DEFICIT)

Years ended April 30, 1971 and 1970

	1971	1970
Retained earnings—beginning of year	$ 322,127	$506,952
Net earnings (loss) for the year	(1,799,339)	(184,825)
Retained earnings (deficit)—end of year	$(1,477,212)	$322,127

The accompanying notes are an integral part of these statements.

CONSOLIDATED STATEMENT OF CHANGES IN FINANCIAL POSITION

Years ended April 30, 1971 and 1970

	1971	1970
Working capital provided		
From operations		
Current		
Loss before extraordinary item	$(1,090,302)	$ (184,825)
Depreciation and amortization of fixed assets	98,539	92,533
Amortization of research and development, patent costs and costs in excess of net assets acquired	123,664	82,373
Reduction in deferred taxes	(94,847)	
Working capital used for current operations	(962,946)	(9,919)
Extraordinary		
Termination of Atomichron product line development	(709,037)	
Atomichron costs written off not affecting working capital	650,995	
Reduction in deferred taxes applicable to extraordinary item	(61,692)	
Working capital provided from or (used in) operations	(1,082,680)	(9,919)
Issuance of common stock in connection with options and warrants		52,697
Additional long-term debt		
8¾% senior and 7% convertible subordinated notes		1,250,000
Other	11,150	40,695
Increase in deferred taxes arising from refundable income taxes		64,000
Other	36,330	4,749
Decrease in working capital	1,359,901	
	$ 324,701	$1,402,222
Working capital applied		
Additions to fixed assets	$ 69,153	$ 120,038
Additions to deferred charges primarily research and development costs	48,922	412,429
Acquisition of treasury stock		66,717
Reduction in long-term debt	206,626	385,087
Increase in working capital		417,951
	$ 324,701	$1,402,222



Frequency Electronics, Inc. and Subsidiaries

The accompanying notes are an integral part of these statements.

Note A—Principles of Consolidation

The consolidated financial statements include the accounts of the Company and all of its subsidiaries which are wholly owned. In consolidation all intercompany accounts and significant transactions were eliminated.

Costs in excess of net assets acquired are being amortized over ten years beginning in the current fiscal year. Amortization of such costs amounted to $7,144 for the year ended April 30, 1971.

Note B—Inventories

The inventory at April 30, 1971 consisted of:

Raw materials	$191,720
Work in process	770,115
Total	961,835
Less progress payments	186,109
	$775,726

Note C—Fixed Assets

Depreciation and amortization are based on the straight-line method at rates based on the following estimated years of useful life and on the following amounts:

Description	Amount 1971	Amount 1970	Years
Machinery and equipment	$744,219	$723,535	8-10
Furniture and fixtures	95,830	100,469	10
Leasehold improvements	31,563	30,506	Life of lease
Capitalized leases	96,552	87,422	10
	$968,164	$941,932	

Depreciation and amortization expense amounted to $98,539 and $92,533 for 1971 and 1970, respectively.

Note D—Deferred Research and Development and Patent Costs

At a meeting of the Board of Directors in May 1971 a resolution was adopted approving the termination of the development and marketing of the Atomichron product line. Accordingly, unrecoverable costs associated with this project were written off as of April 30, 1971 and are presented as an extraordinary item in the accompanying financial statements. The related costs were as follows:

Research and development	$355,713
Patents	262,966
Inventory	128,000
Fixed assets, less accumulated depreciation of $10,605	32,316
	778,995
Applicable income taxes (including deferred of $61,692)	69,958
	$709,037

Amortization of research and development and patent costs charged to operations were as follows:

	1971	1970
Research and development (amortized over five years)		
Atomichron	$53,452	$26,726
Other	32,050	24,630
Total	$85,502	$51,356
Patents		
Atomichron	$31,017	$31,017

Note E—Long-Term Debt

Long-term debt of the Company consists of the following:

	Total	Current maturities	Noncurrent maturities
Notes payable to bank payable in quarterly installments to October 1971 plus interest equal to 1% over the bank's prime rate for short-term borrowings	$ 75,000	$ 75,000	$
8¼% senior note due October 1, 1981	750,000	83,000	667,000
7% convertible subordinated note due October 1, 1981	500,000		500,000
Notes payable to National Radio Company, Inc. payable annually to February 1979, without interest	260,000	32,500	227,500
Capitalized lease obligations payable monthly to 1975 including interest	35,033	12,338	22,695
Total	$1,620,033	$202,838	$1,417,195

The $750,000, 8¼% senior note due October 1, 1981, is payable to Massachusetts Mutual Life Insurance Company and requires annual principal payments of $83,000 commencing October 1, 1971, and semi-annual interest payments.

The $500,000, 7% convertible subordinated note due October 1, 1981 also payable to Massachusetts Mutual Life Insurance Company, requires annual principal payments of $71,000 commencing October 1, 1975 and semi-annual interest payments. The note is convertible into common stock at $5.75 per share to maturity. The Company has reserved 86,957 shares of common stock for this purpose.

Under the terms of the life insurance company loan agreement, as modified, they require among other things: limitations on the sale, transfer or mortgaging of property, borrowing of current funds, leasing of fixed assets, making loans, pledging credit or paying dividends and the maintenance of a minimum consolidated working capital as defined. One-half of any proceeds received from sale, if any, of Atomichron assets (Note D) are to be applied to the prepayment of the 8¼% senior note.

The notes payable to National Radio Company, Inc. are subject to a security agreement and financing statement covering all assets purchased. The value of such assets purchased in February 1969 was approximately $700,000. (See Note D.)

The Company capitalized machinery and equipment rented under various leases having initial terms of three to five years. (See Note C.)

Note F—Deferred Income Taxes

The Company had deferred to future periods the income tax effect resulting from timing differences between financial statement pretax and taxable income, arising from the treatment of research and development costs and depreciation.

The reduction in the operating loss in the current period stated at $94,847 represents the effects of offsetting the deferred tax credits by the tax effects of the operating loss carryforwards. Such operating loss carryforwards amount to $1,706,000 and expire in 1975 and 1976 in the amounts of $136,000 and $1,570,000, respectively.

Refundable income taxes consist of the recovery of taxes paid in prior years, resulting from carryback of net operating losses.

NOTES TO FINANCIAL STATEMENTS April 30, 1971

Note G—Commitments and Contingencies

Litigation
The Company instituted an action against Diapulse Corporation of America (Diapulse) and others in February, 1968 in which it has claimed substantial damages resulting from the termination of a contract then existing between the Company and Diapulse. The defendants have counterclaimed for $2,000,000. In the opinion of counsel for the Company, the counterclaims are without merit, but no opinion can be given as to the possibilities of recovery by the Company in this litigation. Expenses incurred in connection with this litigation have been charged to earnings.

Leases
The Company occupies plant and office facilities under a lease expiring in 1990 and requiring annual rentals of $51,000 plus real estate taxes, insurance and other charges. The rent paid under the lease was $92,000 in 1971 and $89,000 in 1970.

Commitments
On April 28, 1971, the Company agreed to purchase land and a building in Woodside, New York, previously leased and used for the operations of a subsidiary, for $45,000. In June 1971 the contract was closed and the purchase price paid.

Note H—Stock Options
The Company has two Stock Option Plans and has granted nonqualified stock options to certain officers and directors.

A Restricted Stock Option Plan under which 40,000 shares were reserved was adopted in 1962. Option prices are not less than 85% of the fair market value of the underlying common stock determined on the date the option is granted and such options are exercisable for a period of ten years. No options were exercised during the year. At April 30, 1971, options for 400 shares at a price of $1.28 per share remain unexercised.

The Company also has a Qualified Stock Option Plan adopted in 1965 under which 40,000 shares were reserved. This was increased to 45,000 shares on August 28, 1969. Option prices are not less than 100% of the fair market value of the underlying common stock determined on the date the option is granted and such options are exercisable after one year at the rate of 20% annually (on a cumulative basis) for five years. No options were granted or exercised during the year. At April 30, 1971 options for 24,320 shares at prices ranging from $4.00 to $8.00 per share remain unexercised and options for 18,100 shares were available for future grants.

The Company has from time to time granted nonqualified options at the fair market value of the shares on the date of grant. The options are exercisable for five years and are subject to certain restrictions on transferability of the shares obtained on exercise. At April 30, 1971, options for 41,000 shares at prices ranging from $4.00 to $5.00 per share remain unexercised.

The excess of the consideration received over the par value of the common stock or cost of treasury stock issued under these option plans has been recognized as an increase in additional paid-in capital. No charges are made to income with respect to stock options.

Note I—Warrants
In September 1968, the Company sold to its underwriters for $2,000 five year common stock purchase warrants, entitling the holder to purchase 20,000 shares of common stock. The warrants are exercisable until September 1973 at prices ranging from 114% to 128% of the public offering price ($9.25) of the common stock.

Note J—Marketable Securities
The amount stated in 1971 of $82,000 represents original cost less a loss recognized in 1970 arising from a decline in market value. The amount stated in 1970 of $776,109 represents market value which was less than cost of $811,109 at that date.

Note K—Stock Bonus Plan
The Company adopted a noncontributory stock bonus plan in 1966. The plan provides for contributions by the Company in its common stock, cash or a combination thereof at the sole discretion of its Board of Directors. Any annual contribution by the Company cannot exceed 15% of the earnings of eligible employees. There is no provision for profit sharing for the year ended April 30, 1971 or for the year ended April 30, 1970.

Note L—Loss Per Share
The computation of loss per share is based on the weighted average number of common shares outstanding during the year. Shares issuable on exercise of outstanding options are excluded on the basis that their effect is anti-dilutive. The 7% convertible subordinated notes are not considered a common stock equivalent and the effect in computing fully diluted earnings per share is anti-dilutive.

ACCOUNTANTS' OPINION

Board of Directors and Stockholders
Frequency Electronics, Inc.

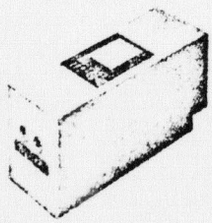
We have examined the consolidated balance sheet of FREQUENCY ELECTRONICS, INC. AND SUBSIDIARIES as of April 30, 1971, and the related consolidated statements of operations, retained earnings (deficit), additional paid-in capital and changes in financial position for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances. We have previously made a similar examination of the consolidated financial statements as of April 30, 1970 as to which our opinion was qualified as to the ultimate realization of the research and development costs and the patent costs, in the amounts of $477,083 and $293,983, respectively, charged to operations in the year ended April 30, 1971, as described in Note D.

In our opinion, the financial statements mentioned above present fairly the consolidated financial position of Frequency Electronics, Inc. and Subsidiaries at April 30, 1971, and the consolidated results of their operations and changes in financial position for the year then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

Alexander Grant & Company

New York, New York
July 17, 1971

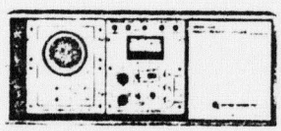




FREQUENCY ELECTRONICS, INC.

A Unique Dimension

3 Delaware Drive,
New Hyde Park, N. Y. 11040
(516) 328-0100







SUBSIDIARIES:

ATOMICHRON, INC. FKS COMMUNICATIONS, INC. MARLBORO RESEARCH, INC.

NASSAU County

DRAFT 6/17/69

AGREEMENT

This Agreement made as of the 27th day of June, 1969 between National Radio Company, Inc. ("NRCI") and Frequency Electronics, Inc. ("FEI").

WITNESS:

Whereas, on or about February 3, 1969 NRCI and FEI executed, delivered and exchanged a certain agreement entitled "Purchase and Sale Agreement" hereinafter called the "Agreement", and

Whereas, the Agreement provided for delivery by NRCI to FEI of certain chattels or property, and in connection with such delivery, certain apparent deficiencies have been disclosed and alleged by FEI,

It is agreed:

1.) That FEI shall be entitled to a credit for the agreed value of certain items of property, to be applied against payments each in the sum of $32,500 on a certain note in the original face-amount of $325,000 dated on or about February 3, 1969 (the "Note") $2,500 of such credit to be used by FEI against the first payment under said Note, due on or about February 3, 1970, and the balance of such credit to be used by FEI no sooner than the second payment under said Note, which "second" payment is due on or about February 3, 1971, said credit to be as follows:

a)	For One (1) 2001 Atomichron----	$13,000.00
b)	For One (1) Hydrogen Puro-Dryer----	1,000.00
	Total	$14,000.00

2.) That in the event that NRCI does not deliver or cause to be delivered free and clear to FEI certain items of "GFP" being item #38 and #57 and #78 on Exhibit "A" attached to and forming a part of the Agreement in or within forty-five (45) days from date hereof, FEI shall be entitled to a further credit against a payment of $32,500 on the Note, such credit to be taken not earlier than the second payment on the Note, as aforesaid, and to be in the sum of $9,000.00.

3.) That the following language in the "Security Agreement" executed by FEI in connection with the Agreement, (said Security Agreement being Blumberg Form X-78) be and the same hereby is deleted from the Security Agreement:

"b.) All property, goods and chattels of the same classes as those scheduled, acquired by the Debtor subsequent to the execution of this agreement and prior to its termination."

4.) a.) That all claims of or by FEI arising out of or in connection with the Agreement with regard to the delivery or non-delivery of property listed on Exhibit "A" to the Agreement, be and they hereby are satisfied, released and forever discharged.

b.) FEI hereby assigns to NRCI any and all rights against the "carrier" with regard to said delivery(s) or non-delivery(s).

In Witness Whereof, the parties hereto set their hands and seals this day of June, 1969.

NATIONAL RADIO COMPANY, INC.

By Ray E. Thomas

FREQUENCY ELECTRONICS, INC.

By Morris B. Braun

National Radio Co.
Notes + Draft

LETTER AGREEMENT

SUBJECT:	Agreement between National Radio Company, Inc. and Frequency Electronics, Inc. for the purchase by FEI and the sale by NRCI of its Atomichron line, AS AT 30 DECEMBER 1968.
DESCRIPTION:	Generally described as the cesium beam resonator and peripheral electronic assemblies, sub-assemblies and accessories and all business, patents, data, rights, inventories and all equipment related thereto, including but not limited to the items listed on Exhibit A attached hereto and made a part of this agreement.
AMOUNT:	$733,000 Purchase and sale price.
METHOD OF PAYMENT:	$208,000 cash at closing, 200,000 note due in 18 months from closing bearing no interest and payable in cash or registered common stock of FEI (assuming this is permitted under SEC regulations), at option of buyer, provided market value of stock is in excess of $10.00 per share at due date. 325,000 payable on July 31, of each year for the next ten (10) years beginning July 31, 1970 in yearly increments of $32,500. $733,000 Total payment.
METHOD FOR DETERMINING MARKET VALUE OF STOCK:	Average of mean bid and ask price for last twenty trading days prior to due date of note.
ROYALTIES:	FEI will pay NRCI a royalty of 5% on all sales in excess of $650,000 per year for the cesium beam resonator standards for a period of ten years from date of closing. Total royalty shall not exceed $150,000 over the said ten (10) years. Additionally, FEI will pay to NRCI a royalty of 1% on all such sales, starting with the first dollar of sales, during the years eleven through twenty, with no maximum on the amount of royalties paid, with respect to the said 1%.
ACCOUNTING:	FEI will submit to NRCI fiscal yearly statements (May 1 to April 30) of accounting for royalties, prepared by their Certified Public Accountants no later than July 31 of the following year. NRCI reserves the right of audit by its own Certified Public Accountants.

PAYMENT:	Payment will be made in cash or equivalent each year, no later than July 31 of the year following FEI fiscal year.
EXISTING OBLIGATIONS:	FEI will assume, and agrees to hold NRCI harmless from, existing obligations with Gordon Engineering Company and Mr. J. R. Zacharias related to royalties only as set forth in Exhibits B and C attached and made a part hereof.
NRCI CAUSES:	NRCI will assign all causes of action presently accrued or pending, including without limitation causes for patent infringement provided FEI assumes all risk and expense of such litigation and provided that any net proceeds after reasonable expenses shall be shared equally by FEI and NRCI.
CLOSING:	As soon as possible but not later than 31 January 1969.

The agreement as outlined above was arrived at by Frank F. Oddi, representing National Radio Company, Inc., and Martin B. Bloch, respresenting Frequency Electronics, Inc., at a meeting at the office of Frequency Electronics, Inc. on 25 November 1968 and subsequent conversations by telephone between the same two individuals during the period 29 November and 30 December 1968. On 29 November 1968, Mr. Oddi received the approval of Mr. L. C. Lerner, Chairman and member of the Executive Committee, and Mr. Ray E. Horner, member of the Executive Committee, authorizing him to consummate the deal as generally outlined above. Mr. Abraham Lazar, Vice President and Board Director of Frequency Electronics is authorized to sign this agreement on behalf of Frequency Electronics, Inc.

It is understood that this agreement is subject to NRCI and FEI Boards' approval which Mr. F. Oddi and Mr. Lerner are confident can be secured from NCRI and Mr. Bloch from FEI.

NRCI has agreed to furnish in support of this agreement a list and details of patents, inventories and equipments unique to the subject product line.

It is intended that the above agreement is firm and final and that any obstacle or details in the legal rights will not serve to afford a means by which this agreement may be breached.

It is understood and agreed that this agreement remains confidential until closing or until such prior date as authorized, in writing, by National Radio Company, Inc. and Frequency Electronics, Inc. All parties with knowledge of this agreement are bound to its confidence.

NATIONAL RADIO COMPANY, INC.

Frank F. Oddi
President

Accepted by:

FREQUENCY ELECTRONICS, INC.

Abraham Lazar

Abraham Lazar, Vice President

Date December 26, 1968

NATIONAL RADIO COMPANY, INC.

Frank F. Oddi

Frank F. Oddi, President

Date 31 December 1968

PROMISSORY NOTE

$325,000.00

Melrose, Mass.
February 3, 1969

For Value Received,

Frequency Electronics, Inc., a Delaware corporation, hereby promises to pay to the order of National Radio Company, Inc., at its offices, 111 Washington Street, Melrose, Massachusetts, or such other place as the holder hereof shall designate in writing.

the sum of: Three Hundred Twenty-Five Thousand ($325,000) Dollars, payable in ten (10) equal annual installments beginning February 3, 1970, and annually on the 3rd day of February thereafter until the entire balance hereunder has been paid, such balance to be paid in any event in or within ten (10) years from the date hereof.

This note shall bear no interest prior to maturity but shall bear interest in the event of default in the payment of any installment due hereunder at the rate of 1% per month on principal balances from time to time outstanding until such overdue installment(s) is paid.

Upon the default in the payment of any sum becoming due hereunder, or any other default under this Note or in the performance and observance of the provisions of any mortgage, security agreement, credit agreement, or other agreement pertaining thereto, then all remaining unpaid installments of said principal sum and any unpaid parts thereof shall, at the option of the legal holder hereof, become immediately due and payable without further demand or notice, the undersigned hereby, jointly and severally, waiving such demand or notice, as well as demand, protest, presentment for payment, and notice of non-payment and protest, and also waiving any and all defenses on the ground of any extensions or partial payments with respect to any installments or parts thereof which may be granted or accepted by the legal holder hereof from any of them, with or without the knowledge or consent of any other, before or after maturity.

At the option of the holder, this Note shall become immediately due and payable without notice or demand upon the occurrence at any time of any of the following events: If the undersigned corporation is liquidated, terminated or dissolved, or, if any party liable hereon, whether as maker, indorser, guarantor, surety or otherwise shall make an assignment for benefit of creditors, or if a receiver of any such party's property shall be appointed, or if a petition in bankruptcy or other similar proceeding under any law for relief of debtors shall be filed by or against any such party.

Ex. P

If this Note is placed in the hands of an attorney for collection, the undersigned, jointly and severally, agree to pay all costs and expenses incident thereto including reasonable attorney fees.

Without affecting the negotiability of this instrument, the undersigned, jointly and severally, if, and to the fullest extent, permitted by law, hereby also waive trial by jury of any and all issues which may be raised in any law suit, which may be brought hereafter against the undersigned, based upon or arising out of any claim of default in payment of this Note or any installment thereof.

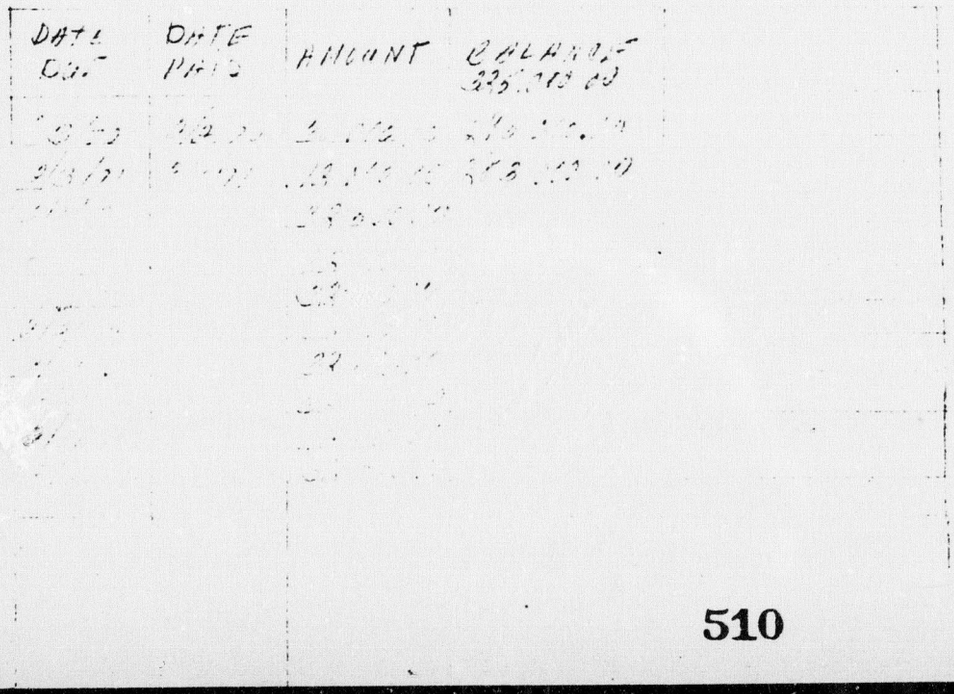
This instrument shall take effect as a sealed instrument and shall be governed by the laws of the Commonwealth of Massachusetts.

In Witness Whereof, and intending to be legally bound, the undersigned hereto sets its hand and seal.

FREQUENCY ELECTRONICS, INC.

By Kent M. Klineman
hereunto duly
authorized

E. Whitney Drake, Witness



A S S I G N M E N T

April 9, 1970

For Value Received, National Radio Company, Inc., a Massachusetts corporation ("NRCI") hereby assigns to Louis C. Lerner all its right, title and interest in and to a certain non-interest bearing promissory note dated February 3, 1969, made by Frequency Electronics, Inc., a Delaware corporation, ("FEI") payable to NRCI in the original principal amount of $325,000 which is reduced by the principal payment of $32,500 made by FEI on February 3, 1970, thereby leaving an unpaid principal amount of $292,500 as of the date hereof, which amount is subject to reduction by an additional $20,500 in accordance with the terms of an Agreement between FEI and NRCI dated June 27, 1969. This assignment is subject to the rights, if any, of the Middlesex Bank, NA of Everett, Massachusetts. This assignment is without warranties and without recourse in any event.

IN WITNESS WHEREOF, the undersigned hereunto sets its hand and corporate seal as of the date first written above.

[Corporate Seal]

NATIONAL RADIO COMPANY, INC.

By Ray F Hamel President

Accepted by:

Louis C. Lerner

Louis C. Lerner

Consented to by:

Middlesex Bank, NA

Ex Q

111 WASHINGTON STREET, MELROSE, MASS. 02176

TWX 617 - 665-5172

April 24, 1970

PLTF EXBT (2) for Ident.

J. HORN

APR 19 1972

Mr. Louis C. Lerner
445 Park Avenue,
New York, New York 10022

Dear Mr. Lerner:

This is to confirm a transaction which you undertook at the Company's request at a time when the Company needed both cash and the retirement of bank debt. At our request you acquired from the Company two promissory notes in the original principal amounts of $200,000 and $325,000, and accepted the endorsement of these notes "without recourse". These notes were issued by Frequency Electronics, Inc. of New Hyde Park, New York, in favor of the Company, said FEI also having executed a security agreement therefor. The notes and the security agreement were pledged with the Middlesex Bank, N.A. to secure a loan in the amount of $270,000. You also made arrangements whereby the Company was released from liability to the Bank in connection with the payment by you of the purchase price suggested by the Company of $323,000, to include the assumption of the debt and the payment of cash to the Company's account.

In connection with the aforesaid transaction, it is understood that, apart from the notes, you are to have no direct rights under the agreement between the Company and FEI, including any rights to the royalty provided for. You are also subject to the terms of an amendment to said agreement executed in June, 1969, which involves a credit which can be set off by FEI against the notes. Of this credit, $2,500 was applied against the payment of $32,500 in February, 1970, which the Company received. You recognize that in purchasing these notes that this payment has been made and that your purchase price took this into account. In view of this agreement continuing in effect, the Company agreed with you as a part of this transaction that it will provide you with any and all financial information of FEI it obtains under said agreement. It further agrees to indemnify you against, and will come in and defend, any setoff or counterclaim made by FEI against you or the holder of said notes in any action to realize thereon, if said setoff or counterclaim is based on any action of the Company. This, of course, does not include the credit referred to in the June, 1969, amendment to the basic FEI agreement, which you accepted in agreeing to the purchase price.

It is also understood that you are to have proper notations placed on said notes of payments made to date, and a reference to the June, 1969, amendment to the basic FEI agreement.

Copies of the FEI agreement, the amendment of June, 1969, the notes, the security agreement and the amended security agreement are attached hereto.

Again, the Company wishes to reiterate that this transaction was suggested to you in order to provide the Company with required cash and debt servicing; that the price suggested by the Company was fair and reasonable; and that you effected the transaction with full knowledge of the facts involved. If the foregoing is a correct statement of the transaction and the obligations of the parties, kindly affix your signature to the copy hereof delivered with the original, and return same to the Company.

Very truly yours,

NATIONAL RADIO COMPANY, INC.

BY _____
President

ACCEPTED:

_____
Louis C. Lerner

Approved by the Board of Directors,
Mr. Lerner not participating, on
April 24, 1970.

ASSIGNMENT

November 6, 1969

For Value Received, National Radio Company, Inc., ("NRCI"), a Massachusetts corporation having its office in Melrose, Massachusetts hereby assigns and endorses to Middlesex Bank, N.A., (the "Bank") a banking corporation having its principal office in Everett, Massachusetts, as collateral for a loan of even date in the sum of $300,000, two (2) certain promissory notes dated February 3, 1969 in the face amount of $200,000 and $325,000 respectively* in which notes Frequency Electronics Inc. a Delaware corporation having its office in New Hyde Park, New York, is Maker and in which notes NRCI is payee and the holder. The Bank is hereby vested with all the rights of a "Secured Pary" under the Uniform Commercial Code with respect to said collateral, including without limitation, the right to enforce said notes as holder in accordance with their terms.

In Witness Whereof, the undersigned hereto sets its hand and corporate seal as of the date first above written.

NATIONAL RADIO COMPANY, INC.

BY _____

*Said $325,000 Note is subject to credits totaling $23,000 as per agreement attached and made a part hereof.

Holt 1/10/75

NATIONAL RADIO CO., INC. 111 Washington Street Melrose, Mass.

Comment Cont.
April 30, 1970

Questioned as to the results of operations apart from the designation of assets, Sweeney said that the company will show a loss of about $900,000. It would appear that the loss will throw the company into a default position under its loan agreement with the note holders, although he did not say that this would be the case. Because of the involved situatio of National, plus the possibility which would exist that a draft would be made against the letter of credit, the request was turned down with the answer that we were not prepared to advance any additional funds to the company currently outstanding which would be jointly to National and Lerner, $350,000 to the former and $50,000 to the latter. It is understoo that as soon as assignments can be completed, that Lerner will take over the National position as we currently have a note signed individually for $400,000 and against which we have advanced $50,000. It should be noted that Lerner has put up a $100,000 interest bearing CD for the term of his loan. National continues to carry the $54,000 time open account which Lerner also will take by assignment. Lerner individually has several accounts running in the low five figures. In addition, we have the Plated Wire & Electronics account, a subsidiary of National, running in the low five figures, and Victoria Investment Co. has a non-interest bearing CD with us for $50,000.

H. G. Holt
J.A.L.
C.P.D.
Q.J.S.
P.J.R.
July 17, 1970

The Early Warning Bulletin dated July 16, 1970 lists an attach ment against National Radio Co., Inc., 99-111 Washington Stree Melrose, for $8,960 by Austin Hasting Co., Inc.

J. A. Lynch
H.G.H.
C.P.D.
P.J.R.
Q.J.S.
July 28, 1970

Fred Sweeney today reported that the State Street Bank has brought in George Friedlander and his Exeter International Co. and management consultants. State Street also advanced $250,000, taking a security inter in all fixed assets. This enabled the company to reduce its trade debt fro $2,200,000 to approximately $1,400,000. He reported that the backlog h improved somewhat, but overall conditions are not too favorable.

J. A. Lynch
H.G.H.
C.P.D.
P.J.R.
Q.J.S.
August 11, 1970

Steve Lerner reported that today, National filed under Chapter II in U.S. District Court, Boston. Trading has been stopped. The debtor wi continue in possession.

J. A. Lynch
H. G. H.
C. P. D.
Q. J. S.
P. J. R.
April 29, 1970

The company continues owing $270,000 here with $54,000 being held in a time open account. The collateral is represented by notes due from Frequency Electronics, Inc. of Long Island. The company has been extremely tight, cash position, and about two weeks ago, we advanced an additional $80,000 against previously pledged collateral with the understanding that the total loan would be paid out from proceeds of a $400,000 loan to Louis C. Lerner with the latter collateralized by the notes due from Frequency Electronics, Inc. and additional listed and unlisted securities owned by Mr. Lerner individually.

Talking with Fred Sweeney, the Controller, on April 28, he said that the deal for the sale of Color-Sonics products is still in process of being negotiated. They have received the first $25,000 and expect to receive a letter of credit for $100,000 within a few days. The claim against the government is set up for June 1970 dockett by the Armed Services Board of Contract Appeals. They are currently working on obtaining a bond for $330,000 backed up by a letter of indemnification to the bonding company to free up an additional payment of that amount by the government. He said that the statement carries about $1,500,000 in claims due from the government but the final figure should come out around $1,000,000. In passing, it was noted that the stock of the company reached a 15 year low earlier this week at 3 1/8. Book value of the stock is 2 1/2 with a tax loss available of $1,500,000 which would increase the book to 3 1/4.

J. A. Lynch
H. G. H.
C. P. D.
Q. J. S.
P. J. R.
April 30, 1970

We were requested by Lou Lerner today to consider writing a letter of credit for National Radio Co., Inc. in the amount of $330,000 as a standby to allow the company to bond a claim by the government which had been discussed in previous comments. We obtained additional information from Fred Sweeney, Controller, regarding the contract which was for Naval Electronics, G. R. 17, the original amount, $3,288,513.75. The basis of the claim is a late delivery penalty claim, $328,851.38, against the company. According to Fred Sweeney, this resulted from a delivery date of May 1, 1968 and delivery was not met because the government came through with a change order in March of 1968, saying that delivery would not be accepted without the changes, and changes could not be made within the time allotted before the original delivery date. This is the basis of the claim and it goes before the Services Contract Board of Appeals in June of 1970. However, it was stated that this could drag on for up to 18 months. The government is prepared to pay the $330,000 immediately, provided the company is bonded to show the ability to repay the $330,000 should there be an adverse ruling to the company. Going further on the National situation Fred Sweeney reported that the audit has been completed, but there is still discussion going on between management and the accountants regarding classification of certain assets. The American Stock Exchange has been promised that figures will be released by the early part of next week.

NATIONAL RADIO CO., INC. 111 Washington Street Melrose, Massachusetts

L. A. Lynch
H. G. H.
Q. J. S.
P. J. R.
C. P. D.
November 7, 1969

Today loaned $300,000 for 120 days at 1% over prime secured with underlying collateral as follows: (2) notes of Frequency Electronics, Inc. $200,000 and $325,000 respectively (less a credit of $23,000) and an assigned security interest in the collateral of the so-called Automichron division purchased by Frequency. We received an agreement from State Street Bank that their security interest did not cover items in our financing and a statement from Lou Lerner that he would see that we were taken out, if requested, after 120 days. The first $29,500 from Frequency is due within the term of our note.

A new account has been opened with the proceeds and was immediately debited for $60,000 which was put in a non-interest bearing time open account.

J. A. Lynch
H. G. H.
Q. J. S.
P. J. R.
C. P. D.
March 3, 1970

The loan of $300,000 made in November is scheduled for payment on March 6th. It was reduced by $30,000, the first payment from Frequency Electronics, Inc. Lou Lerner and Fred Sweeney jointly requested a renewal of the balance to August 2nd when the next $200,000 would be due from Frequency. On March 2, Fred Sweeney said that the audit for National is a long way from being complete. Based on a volume for the year of $13,000, he said that operations would be $40,000 either way, profit or loss. The immediate problem with the company seems to be the Color Sonics. He said that the Harris poll came up with a good report on the product but they are having a very difficult time in getting financing. It still appears that this may have an adverse effect on National operations if the situation is not resolved. He said that first quarter operations for National will show sales in the $2,500,000 to $3,000,000 range, a decrease in line with the cut-back in government spending. He estimates about a 5% profit for the first quarter. For the full year of 1970, with the backlog currently on hand, sales should approximate 1969 totals. He notes one basic difference in government work. The company formerly was able to take research and engineering contracts, counting on the production contract being awarded and the profit would be on the production end. Now they find the government letting out the research projects without following up with production awards, and, as a result, National has had to be leary of this type of contract. On March 4, he will be in Washington before the Board of Contract Appeals looking for a part-payment of $329,000 in the claim that the company has against the government. In lieu of obtaining that, they will apply for a direct loan from the U.S. Navy. He reported that inventories were not materially reduced at year-end, but that at the end of February, the condition of the inventory has been improved. Regarding the principal bank status, he reported that the State Street is currently owed $2,300,000 on the same basis as previously, and he mentioned that that bank is much concerned about the Color-Sonics situation. A check will be made with State Street for current information before approving a renewal of the present balance outstanding.

NC 142
REV. 1/66

omment Cont.
November 4, 1969

previously mentioned division plus some unprofitable government contracts and because of investments made in the subsidiary, Color-Sonic Inc. Color-Sonics manufactures an audio visual device for the industrial market. Up until recently, market potential and realization and expectations for the product line were hampered by reliability problems. These are now reported to be successfully resolved. If certain market tests which are currently underway succeed, the company has a market contract potential which is in excess of $7,000,000. For the 9 months ended 9/30/69, sales were $9,393,000 as against $7,087,000 in 1969 for the corresponding period and the loss this year was $50,000. Without comparable figures for 1968, other than that the total for the year was $883,000 which included substantial year-end write-downs. Current backlog is reported in excess of $12,000,000 as against $16,000,000 coming into the year and current projections show better than break-even operations for the last quarter. In connection with one particular contract, it was said that the company had a claim against the government of around $2,000,000 and it is felt that at least $1,000,000 can be eventually realized. Carried in inventory for $250,000 -/

We questioned the ability of the company to repay any advance at this time other than from proceeds of the aforementioned Frequency Electronics notes. Today Lou Lerner called back to say that right at this time, additional equity is being negotiated thru Baer, Sterns Co., New York, for somewhere between $750,000 to $1,000,000. He would also expect an increase in working capital as a result of profits to be realized from current inventory and would expect some settlement on the government claim to add additional funds. In any event, if we set a 4 month term on the obligations, he would personally see that the loan was taken out, even though he would not consider personally guaranteeing the obligation at this time.

Talking with Sweeney previously, he mentioned that since taking over as president, Ray E. Horner, had changed the organization around to his way and had brought in his own men in key positions. Horner took over as president on 2/28/69 after having been elected executive vice president on 6/28/68. He previously was general manager of the Urbana Illinois operation and prior to that was with G.E for 10 years in various manager capacities. The latest annual report of Frequency Electronics, Inc. was submitted together with a clipping from the Electronic News on 10/13/69, to the effect that the company concluded a $1.25 million dollar financing agreement with Mass. Mutual Life Insurance Co., Springfield, Mass. The president of the company, Martin B. Bloch, said the agreement was in the form of two notes, the first in the amount of $750,000 at 8 3/4% due 10/1/81 and the second note for $500,000 at 7% is a convertible subordinated note also due on the same date.

C. P. Driscoll
H. G. H.
J. A. L.
R. S. S.
February 23, 1968

Have an indirect position with this company in that we hold a total of $150,000 plus in assigned leases to the Chandler borrowing, and $800, odd in their stock as collateral to the Lerner-Victoria loans.

J. A. Lynch
H. G. H.
J. A. C.
P. J. R.
Q. J. S.
C. P. D.
November 4, 1969

This is a current account of the State Street Bank where the company a $2,300,000 line which is presently being used in full. This is secu by accounts receivable, contract rights, general intangibles and inventories.

On October 31, 1969, received a call from Mr. Lerner in New York requesting that we consider discounting two notes of Frequency Electronics, Inc. for $500,000 for 120 days. Notes have a face value of approximately $522,000 and arose from the sale of the Atomichron Division. National realized some $200,000 plus in the deal and the notes were scheduled for payment - $30,000 - 2/3/70; $200,000 8/3/7 $12,000 - 8/3/71 and subsequently 8 at $32,500 annually on the same Proceeds of the discount would be used for general working capital purposes.

Subsequently, Fred Sweeney, Controller of the company, talked to the writer to further explain the figures of National, particularly, in connection with the loss of $882,000 in 1968. The loss resulted from the

BEST COPY AVAILABLE

NATIONAL RADIO COMPANY, INC.

Regular Meeting of the Board of Directors

April 24, 1970

A regular meeting of the Board of Directors of National Radio Company, In. was held on Friday, April 24, 1970 at 10:00 A.M., E.S. at the office of Lerner & Co., Inc., 10 Post Office Square, Boston Mass., pursuant to notice duly given. All directors were present except Mr. Price. Mr. Louis C. Lerner presided, and Mr. Walter L. Landergan, Jr. acted as Secretary pro tem in the absence of the Secretary. Messrs. Shaps, Drake and Sweeney were also present by invitation.

The Chairman stated that since all directors had received copies of the minutes of the previous meeting of the Board, he would accept a motion to dispense with the reading of same and approve them as written.

On motion duly made and seconded, it was unanimously

VOTED: to dispense with the reading of the minutes of the previous meeting of the Board of Directors, held March 27, 1970, and to accept and approve said minutes as written.

Mr. Horner then presented his report and reviewed the status of various programs and proposals on which the Company is working or bidding. He also indicated possible timing in obtaining contracts in connection with outstanding proposals. He reported that a contract had been signed for the sale of 500 Color-Sonics to drive-in theatres and reviewed the details of this contract. He also

reported that negotiations were in process for possible franchise sale in Canada for the Color-Sonics machine. He also outlined work being done by the Company for the possible development of other commercial products. After discussion, on motion duly made and seconded, it was unanimously

VOTED: to accept and approve the President's Report.

Mr. Lerner then outlined to the Board in detail a transaction whereby he purchased two promissory notes of Frequency Electronics, Inc. payable to the Corporation. There was also presented to the Board a letter dated April 24, 1970 from the Corporation to Mr. Lerner outlining this transaction. Mr. Lerner also reported to the Board that the United States government had indicated that it would be willing to make payment to the Corporation at the present time of $328,000 representing the liquidated damage portion of a claim by the Corporation against the United States government, but that the government would be willing to make such payment only if it obtained a surety bond from a surety company. He also advised that the surety company which had been approached to obtain the bond had requested the personal guarantee of Mr. Lerner to the surety company against loss to the surety company in connection with such bond. These various transactions were then discussed at length by various members of the Board. Thereupon, on motion duly made and seconded, Mr. Lerner not voting, it was

VOTED: to approve and ratify a transaction whereby Louis C. Lerner purchased two promissory notes of Frequency Electronics, Inc. payable to the Corporation in the respective principal amounts of $200,000 and $325,000, all as outlined in a letter dated April 24, 1970 from the Corporation to Louis C. Lerner and presented to the meeting.

FURTHER
VOTED: to approve the furnishing by Louis C. Lerner of a guarantee to a surety company in connection with the posting of a surety bond to the United States government in order to obtain immediate payment from the government of the liquidated portion of this Corporation's claim of $328,000 against the United States government, and that this Corporation, at the first available opportunity, take whatever steps may be necessary or appropriate to discharge Mr. Lerner from his obligation to the surety company.

Mr. Lerner then presented the Treasurer's Report. He reviewed the Corporation's working capital situation and short term debt. At his request, Mr. Sweeney presented to the Board an updated unaudited financial statement as of December 31, 1969, and explained the various year-end adjustments reflected in such statement. He also reviewed current operating results and the working capital needs of the Corporation. Mr. Sweeney also outlined the status of the year-end audit and various questions raised by the auditors in connection therewith. He also reviewed for the Board the results of recent discussions with the American Stock Exchange relative to an extension of time for the furnishing of year-end statements to shareholders. After questions, comments and further discussion on these matters, it was, on motion duly made and seconded, unanimously

VOTED: to accept and approve the Treasurer's Report.

At the invitation of the Board, Mr. Normal Siegal then entered the meeting and reported to the Board with respect to efforts he had been making on behalf of the corporation with a view to raising of possible additional capital.

The Chairman then presented to the Board a letter from Mr. Sidney M. Price advising of his resignation from the Board of Directors of the Corporation in view of his retirement as President of the First National Bank of Malden and his anticipated move to Cape Cod.

On motion duly made and seconded, it was unanimously

VOTED: to accept with regret the resignation of Mr. Sidney M. Price as a member of the Board of Directors, and to request that the Chairman of the Board convey to Mr. Price the appreciation of the Board for his valuable services to the corporation over the years.

It was determined that the next meeting of the Board would be held on Friday, May 22, 1970, at 10:00 A.M., E.D.T., at the office of Lerner & Co., Inc., 10 Post Office Square, Boston, Mass.

There being no further business to come before the meeting, on motion duly made and seconded, it was unanimously

VOTED: to adjourn.

A True Record

Attest:

Secretary ~~Pro-tem~~

DEFENDANT

EXHIBIT A
U. S. DIST. COURT
S. D. OF N. Y.

Y

M E M O R A N D U M

To: Gideon Cashman, Esq.
Harold E. Berritt, Esq.
Pryor, Braun, Cashman & Sherman

From: Clarence S. Lyon, Esq.
Kenway, Jenney & Hildreth

Subject: Frequency Electronics Claim of Infringement Against Hewlett Pack
File XXH-015

Date: March 17, 1971

I. I N T R O D U C T I O N

The purpose of this memorandum is to summarize for your information the results of our investigation of the Frequency Electronics claim for patent infringement against Hewlett Packard ("H-P") on account of H-P's manufacture and sale of atomic beam frequency standards.

Frequency Electronics acquired certain patents formerly owned by National Company, Inc. of Melrose, Massachusetts relating to atomic beam frequency standards in 1969. We had previously opined to National Company by our letter dated November 20, 1968 that one of the patents subsequently acquired by Frequency Electronics, No. 2,972,115 issued to Zacharias et al was rather clearly infringed. We stated that another patent, No. 2,960,663 to Mainberger, might also be infringed.

After Frequency Electronics acquired these patents you asked that we pursue this claim with Hewlett-Packard. We have engaged in correspondence with counsel for Hewlett-Packard

and have considered the defenses raised by them to Frequency Electronics' claim. This memorandum sets forth our conclusions with respect to these defenses. We have not gone into the technical details which support these conclusions, but would be pleased to discuss these with you or your client at a convenient time.

II. H-P DEFENSES WITH RESPECT TO ZACHARIAS ET AL PATENT No. 2,972,115

Hewlett-Packard does not deny that its 5060A frequency standards infringe claims 3 and 8 of the Zacharias et al patent. They do allege that these claims are invalid by reason of:

(1) failing to define invention over certain prior art which they have located which was not before the Patent Office; and

(2) publication and/or public use by National more than one year before the Zacharias et al application was filed on October 29, 1956.

We have considered the art cited by Hewlett-Packard against claims 3 and 8 of Zacharias et al, namely the U.S. Ginzton patent, No. 2,462,857 and an article by Packard in the review of Scientific Instruments for July, 1948 (pp 435-439). We do not believe that the Ginzton patent is anticipatory of claims 3 and 8 of Zacharias et al. The Packard article is more troublesome and may be anticipatory of the invention disclosed in claims 3 and 8. There is an ambiguity in the Packard article and based on this it might be argued that the concept of Zacharias et al is not disclosed. However, we believe that on

balance the concept defined by these claims would be held to be obvious over the teachings of the Packard article. H-P has also raised the question of prior public use or publication by National. The facts seem to be as follows. Prior to October 29, 1956, National Co.:

(1) delivered an "engineered version" of an atomic beam frequency standard to the Naval Research Laboratory Frequency Standard Section in Anacostia, D.C. on September 6, 1956. Much of the glass work in this clock was broken on delivery. The device was to undergo testing by NRL to compare its performance with other stable oscillators;

(2) held a press conference at the Overseas Press Club in New York, N.Y. on October 3, 1956 at which National's atomic beam frequency standard was displayed and demonstrated.

National also handed out an advertising brochure prior to or at the October 3, 1956 press conference. Subsequent to the press conference articles of a general nature appeared in the New York Times and the Herald-Tribune for October 4, 1956 and in the "Science in Review" column in the New York Times for October 7, 1956.

We have reviewed these various publications and do not find that they themselves disclose the invention. We are also not certain that the inventions claimed in the Zacharias et al patent was included in the units shipped to the Naval Research Laboratory or displayed at the press conference. However, assuming that it was, the question presented is whether these

activities constituted public use or being "on sale". The question is a close one, but we believe that the offering for sale at the press conference probably was enough for a Court to find an offering for sale.

Thus, we conclude that claims 3 and 8 of Zacharias et al are probably invalid over the Packard article. If the concept defined by these claims was included in the National Company Atomichron's offered for sale on October 3, 1956, then the claims are probably invalid on this ground also.

H-P has taken the position that the construction they use in their devices does not infringe claims 1, 2, 4-7, 9 and 10 because the magnets used by them are within the evacuated tube rather than being external to it as required by these claims. We agree that these claims are so limited and from such evidence as we have as to H-P's construction, we would agree that the claims listed immediately above are not infringed.

III. H-P DEFENSES WITH RESPECT TO MAINBERGER PATENT No. 2,960,663

H-P has taken the position that this patent is:

(1) not infringed; and

(2) invalid by reason of the same public use or sale discussed above. Since this patent was filed on June 26, 1958 any public use or sale prior to June 26, 1957 would invalidate it.

We agree that the claims of Mainberger require "switching means" and as taught in the patent, a switch is provided to switch between two separate lines, one of which is the in-phase and the other the quadrature output of the beam tube detector signal. In the H-P system used in their model 5060A a phase-sensitive detector is provided for each signal, and their output signals are connected to an "or" gate and thence to an indicator. We believe that either the claims are in fact infringed, the "or" gate being the "switching means" or that the H-P construction is within the range of equivalents which should be accorded the Mainberger invention. The foregoing remarks apply to the H-P model 5060A which H-P's counsel states was not sold commercially after 1968 and to the Government after 1970.

The model 5061A, their present design, does not appear to infringe based on the limited information supplied to us by H-P. However, before coming to a firm conclusion on this point we would like further information concerning the nature of the operation of the H-P device.

We do not know that Mainberger construction was included in the device sent to NRL in September, 1956 or in the devices offered for sale in October, 1956. A review of contemporaneous reports and my personal recollection would indicate it was not. In any event, the burden would be on H-P to prove that it was in the unit and I would think this would

be difficult, if not impossible at this time. Thus, I do not believe that the Mainberger patent would be invalid by reason of the public use, sale, or offering for sale in 1956 as alleged by H-P.

Thus, on the basis of the evidence at hand I conclude that the Mainberger patent is valid, and infringed. I do note that H-P states that 80% of its sales of the model 5060A are to the Government. I know from personal knowledge that the research and development effort carried on at National Company which resulted in the Mainberger invention was largely, if not entirely, funded by the Government. We did not attend to the details concerning grant of licenses to the Government under National's research and development contracts. Thus we do not know for certain that the Government is licensed under the Mainberger patent but it is probable that it is. If so only the non-Governmental portion of H-P's sales would be infringing.

IV. CONCLUSIONS

After considerating the defenses raised by H-P to Frequency Electronic's allegation of infringement, we conclude that the Zacharias et al patent would probably be held to be invalid, but that the Mainberger patent appears to be both valid and infringed by H-P's model 5060A. Based on present information H-P's model 5061A would not appear to be an infringement of the Mainberger patent.

Other patents of National, now owned by Frequency Electronics may also be infringed, but as to these we at present express no opinion.

Clarence S. Lyon

Clarence S. Lyon

HEWLETT hp PACKARD

1501 Page Mill Road, Palo Alto, California 94304, Telephone 415 326-7000, TWX 910 373 1267

August 24, 1970

K. J. & H.
RECEIVED
AUG 20 1970
BY

Mr. Clarence S. Lyon
Kenway, Jenney & Hildreth
24 School Street
Boston, Massachusetts 02108

Re: Your File XXH-015
Frequency Electronics, Inc.

Dear Mr. Lyon:

The delay in our response to your letter of June 19, 1970, is due to the fact that we are still investigating your infringement charges and the validity of the two Frequency Electronics patents. Only recently have we received the file histories of these patents from the Patent Office. We are presently in the process of formulating a position regarding these two patents and will let you know our views as soon as possible.

Very truly yours,

HEWLETT-PACKARD COMPANY

Stephen P. Fox

Stephen P. Fox
Legal Department

SPF:law

HEWLETT PACKARD

1501 Page Mill Road Palo Alto, California 94304 Telephone 415 326-7000 TWX 910 373 1267

September 17, 1970

K. J. & L.
RECEIVED
SEP 21 1970
BY

Mr. Clarence S. Lyon, Esq.
Kenway, Jenney & Hildreth
24 School Street
Boston, Massachusetts 02108

Re: Frequency Electronics Inc.
Your File XXH-015

Dear Mr. Lyon:

We have reviewed the Zacharias et al patent no. 2,972,115 and the Mainberger patent no. 2,960,663 enclosed with your letter of June 19, 1970. We have also investigated some of the early work in the technology to which these patents relate. Our observations are presented below.

Our 5060A Cesium Beam Frequency Standard does not infringe claims 1, 2, 4-7, 9 and 10 of the Zacharias et al patent because, among other reasons, our unit does not have deflecting magnets external to the evacuated tube. Instead, the magnets are internal to the tube. With regard to claims 3 and 8 of Zacharias et al, we have found that the use of a harmonic component of a resonance line output signal to indicate operation on the line was known in the art well before the filing date of the patent. See, for example, U.S. patent no. 2,462,857 issued to Ginzton et al on March 1, 1949, and an article entitled "A Proton-Controlled Magnetic Field Regulator" in THE REVIEW OF SCIENTIFIC INSTRUMENTS, Volume 19, No. 7, July 1948, pages 435-439.

The 5060A Frequency Standard does not infringe any claims in the Mainberger patent because our unit does not have switching means for connecting either the detector output signal or the output signal from a 90° phase shifter as one of the inputs to a phase-sensitive detector, as called for in all of the claims. Instead, our unit incorporates a different system using two phase-sensitive detectors, one of which receives the output of the beam tube detector, and the other of which receives the output of a 90° phase shifter. We monitor the in-phase and quadrature components of the beam tube detector signal continuously and simultaneously.

AA

It appears that the subject matter claimed in the Zacharias et al and the Mainberger patents was incorporated into the Atomichron Frequency Standard made by the National Company. This device was publicly disclosed more than one year before the filing dates of the patents. Specifically, the Atomichron was shown to the press and demonstrated for industrial leaders and associates on October 3, 1956, at the Overseas Press Club in New York. Following the Press Club display, articles on the Atomichron appeared in the New York Herald Tribune on October 4, 1956, and in the New York Times on October 4, 1956, (page 52) and October 7, 1956, (page E-11). Also, Atomichron advertising booklets referencing a warning circuit and a lock-in indicator, and bearing a copyright date of 1956 were distributed at or about the time of the Press Club display.

Several contract reports indicate that the subject matter of the Zacharias et al and the Mainberger patents was developed under contract with the Signal Corps and the Navy Research Laboratories. In particular, see the final report for Signal Corps Contract No. DA-36-039 SC 64653; the semi-final report for Signal Corps Contract No. DA-36-039 SC 74863; and the final report for Navy Contract No. Nonr 1707(00), NR 375-750. Thus, it appears that the Government is licensed under the Zacharias et al and Mainberger patents. About 80 percent of our 5060A Frequency Standard sales are to the Government. As to this portion of our sales, we suggest that any charges of patent infringement be directed to the Government. In addition, the contract records indicate that at least one Atomichron was actually sold to the Navy and delivered on September 6, 1956, more than one year before the filing dates of the patents.

In summary, our view is that the claims of the Zacharias et al and Mainberger patents are either not infringed by our 5060A Frequency Standard, or that these claims are invalid, and that the Government has primary responsibility for any question of patent infringement by units we sell to the Government. We are, of course, interested in any comments you may have.

Very truly yours,

HEWLETT-PACKARD COMPANY

Stephen P. Fox

Stephen P. Fox
Legal Department

SPF:ct

HEWLETT hp PACKARD

1501 Page Mill Road. Palo Alto, California 94304. Telephone 415 326-7000. TWX 910 373 1267

October 1, 1970

Clarence S. Lyon, Esquire
Kenway, Jenney & Hildreth
24 School Street
Boston, Massachusetts 02108

RECEIVED
OCT 1 1970
BY

Re: Frequency Electronics Inc.
Your File XXH-015

Dear Mr. Lyon:

There may be a delay of several weeks before we can obtain the information on the Model 5060A Frequency Standard which you requested in your letter of September 21, 1970. This is due in part to the fact that the 5060A has been recently superseded by a newer Model 5061 Frequency Standard. We will send you information on both of these models as soon as it is available.

In the meantime, I am enclosing most of the other documentation you requested in your letter, namely the newspaper articles, the Atomichron advertising booklet and the information obtained from the Navy contract records. These items are identified in the attached list.

Our copies of the Signal Corps and NRL contract reports are marked and unsuitable for duplication. In addition, the reports are fairly long, on the order of 100 pages or more each. We suggest that they be obtained from the Defense Documentation Center, Cameron Station, Alexandria, Virginia 22314. Listed below are the contract reports along with the appropriate identifying numbers used by DDC:

✓ Signal Corps Contract No. DA-36-039 SC 64653
Final Report: DDC No. AD-132-532L

Signal Corps Contract No. DA-36-039 SC 74863
Semi-final report: DDC No. AD-212034

NRL Contract No. Nonr 1707(00) NR 375-750
Final Report: DDC No. AD-121462.

We will forward the remaining information you requested as soon as possible.

Very truly yours,
HEWLETT-PACKARD COMPANY

Stephen P. Fox
Legal Department

SPF:aw

Enclosures

AB

HEWLETT PACKARD

1501 Page Mill Road Palo Alto, California 94304 Telephone 415 326-7000. TWX 910 373 1267

RECEIVED
OCT 14 1970
BY

October 13, 1970

Clarence S. Lyon, Esquire
Kenway, Jenney & Hildreth
24 School Street
Boston, Massachusetts 02108

Re: Frequency Electronics Inc.
Your File XXH-015

Dear Mr. Lyon:

Further to my letter of October 1, 1970, I am enclosing copies of pertinent portions of the operating manuals for our Models 5060A and 5061A Frequency Standards. Also enclosed is a copy of our U. S. Patent No. 3,397,310 illustrating a beam tube which in general form is the same as that used in the 5060A and 5061A Standards. As you will note, both models use a cesium beam tube in which the entire magnet assembly is internal, rather than external, to the sealed, evacuated enclosure. In this respect, our cesium beam tubes follow what was stated during prosecution of the Zacharias et al application to be the usual practice in the prior art. (See Amendment A.)

The enclosed material illustrates that the 5060A Standard uses two phase detectors for the second harmonic and the quadrature components, respectively, (as well as a third phase detector for the fundamental signal). Also note that the Model 5161A Standard does not use the quadrature component of the fundamental of the beam tube detector output signal. Instead, a 45° phase-shifted component is used. Thus, neither the 5160A nor the 5061A Standard infringes the Mainberger patent.

Model 5060A units were last delivered to commercial customers in January 1968, and to the U. S. Government (Department of the Navy) in June 1970. Presently we are selling only the Model 5061A Frequency Standard.

Very truly yours,

HEWLETT-PACKARD COMPANY

Stephen P. Fox

Stephen P. Fox
Legal Department

SPF:ct
Encls

AC

4/27/77

November 20, 1968

E. Whitney Drake, Esq.
National Radio Company, Inc.
111 Washington Street
Melrose, Massachusetts 02176

Dear Whit: Re: Possible Infringement of National Radio Company, Inc. Patents by Hewlett Packard Cesium Beam Frequency Standards

In accordance with our various discussions, and the instructions we have received from you, we have reviewed the instruction manual supplied to us by Clarence Thornburg concerning the Hewlett Packard Model No. 5060A Cesium Beam Frequency Standard.

On the basis of this review, we conclude that one or more claims of the Zacharias et al Patent No. 2,972,115 are rather clearly infringed. It also appears that claims of Mainberger Patent No. 2,960,663 may also be infringed. As I indicated to you, while this conclusion is based on a review of the National Company patents and the manual, only, it is unlikely that our conclusion would be changed by further study of these areas.

As I explained to you on Monday, it appears to us that National Radio has two possible courses of action in this situation. They can either write to Hewlett Packard notifying them of infringement with a view to possible settlement or alternatively we can bring suit against Hewlett Packard. The disadvantage of writing to Hewlett Packard is that Hewlett Packard might institute a declaratory judgment suit and have the patents declared invalid or not infringed or both against National in a form which we would not consider favorable. The advantage in writing to them seems to me to be that if there is a disposition on our part as well as theirs to settle the matter, writing them a letter is less likely to generate unpleasant feelings than is filing an action for infringement.

AD

Also, as we note in the attached memorandum, there are a number of other patents in our portfolio which may or may not be infringed but as to which we cannot form a judgment because of lack of information as to the beam tube construction and other details of the Hewlett Packard device.

I am enclosing a copy of the memorandum which was prepared by my associate Mr. Pahl for your information and guidance. I will look forward to hearing from you further as to what action, if any, you want us to take with respect to this matter.

Yours very truly,

Clarence S. Lyon

CSL:lil
Enclosure

BEST COPY AVAILABLE

FREQUENCY ELECTRONICS, INC., Plaintiff, -against- NATIONAL RADIO COMPANY, INC., and LOUIS LERNER, Defendants.	Civ 72-

DEFENDANT EXHIBIT
U. S. DIST. COURT
S. D. OF N. Y.

AE

AFFIDAVIT

Commonwealth of Massachusetts)
County of Suffolk) ss.

I, Clarence S. Lyon, being duly sworn on oath, depose and say as follows:

1. I am a lawyer admitted to practice in the Commonwealth of Massachusetts.

2. Since February 1, 1958, I have been associated with the firm of Kenway, Jenney & Hildreth, 24 School Street, Boston, Massachusetts, first as an associate and later as a partner. Our firm specializes in patent, trademark and related matters.

3. At the time I joined Kenway, Jenney & Hildreth in February of 1958, our firm (then known as Kenway, Jenney, Witter & Hildreth) through Melvin R. Jenney had represented National Radio Company, Inc., formerly known as National Company, Inc. ("National"), with respect to patent and trademark matters. After I joined the firm in February of 1958, I was assigned to work on patent and trademark matters of National and I subsequently took full responsibility for this client.

4. In connection with my work for National, I undertook the prosecution before the patent office of the Zaslavsky et al patent application, now U.S. Patent No. 2,972,113

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(the "Zacharias patent"). The application for the Zacharias patent had been filed prior to my employment by this firm.

5. I was not informed by any other person, nor did I become aware during my prosecution of the patent application which resulted in the Zacharias et al patent of any facts or information which would lead me to believe that the Zacharias patent was or might possibly be invalid on any ground.

6. The Zacharias patent issued on February 14, 1961.

7. Subsequent to the issue of the Zacharias et al patent to and including the closing of the sale of the Atomichron Product Line to Frequency Electronics, Inc. (hereinafter (FEI) on February 3, 1969, I had no information or knowledge which would suggest that any of the patents to be assigned to FEI at the closing were invalid and I made no statement to National Radio Company, Inc. or to Mr. Lerner or any other person suggesting the possible invalidity of any such patents. I was not asked by National to express any opinion on the validity of the Zacharias patent, or on the validity of any other of the patents to be assigned to FEI in connection with the sale of the Atomichron line.

8. Prior to the closing of the sale of Atomichron Product Line, i.e. November of 1968, I wrote to National stating that in my opinion the Zacharias et al patent appeared to be infringed by a certain construction of a Cesium Beam device manufactured by Hewlett-Packard of Palo Alto, California. A copy of such opinion letter is attached hereto as Exhibit A. However, I made no investigation as to the validity of this patent.

9. At or prior to the closing FEI made no request to me or my firm to make any investigation or render any opinion with respect to the validity of any of the patents conveyed to FEI under the Agreement between National and FEI dated February 3, 1969.

10. Subsequent to the closing date of February 3, 1969, and beginning about the spring of 1970, and ending during the summer of 1971, I was employed as special patent counsel to FEI on matters relating to the Zacharias et al patent and another patent assigned to FEI by National.

11. The substance of this affidavit was dictated to the secretary of Attorney Edwin J. Carr of Boston, on Saturday, February 5, 1972, at his offices by the undersigned and subsequently this affidavit was edited by Mr. Carr and further reviewed and edited by me. Both the substance and the language of this affidavit are mine and this affidavit is given to Mr. Carr at his request. Further, it is my understanding that this affidavit may be used by Mr. Carr as attorney for Louis C. Lerner in opposing a motion for a Preliminary Injunction by which FEI seeks to enjoin Lerner from endorsing, transferring or negotiating the Promissory Note of FEI dated February 3, 1969, all as provided in said motion papers. I have read the Plaintiff's Complaint originally filed in the New York Supreme Court in New York County, The Supplemental exhibits thereto and the Affirmation of Attorney Sanford M. Goldman and the Affidavits of Attorney Morton Amster and Mr. Martin B. Bloch.

Clarence S. Lyon

Clarence S. Lyon

Subscribed and sworn to before me this 10th day of February, 1972.

Louis J. Loeba

Notary Public

November 20, 1968

E. Whitney Drake, Esq.
National Radio Company, Inc.
111 Washington Street
Melrose, Massachusetts 02176

Dear Whit: Re: Possible Infringement of National Radio Company, Inc. Patents by Hewlett Packard Cesium Beam Frequency Standards

In accordance with our various discussions, and the instructions we have received from you, we have reviewed the instruction manual supplied to us by Clarence Thornburg concerning the Hewlett Packard Model No. 5060A Cesium Beam Frequency Standard.

On the basis of this review, we conclude that one or more claims of the Zacharias et al Patent No. 2,972,115 are rather clearly infringed. It also appears that claims of Mainberger Patent No. 2,960,663 may also be infringed. As I indicated to you, while this conclusion is based on a review of the National Company patents and the manual, only, it is unlikely that our conclusion would be changed by further study of these areas.

As I explained to you on Monday, it appears to us that National Radio has two possible courses of action in this situation. They can either write to Hewlett Packard notifying them of infringement with a view to possible settlement or alternatively we can bring suit against Hewlett Packard. The disadvantage of writing to Hewlett Packard is that Hewlett Packard might institute a declaratory judgment suit and have the patents declared invalid or not infringed or both against National in a form which we would not consider favorable. The advantage in writing to them seems to me to be that if there is a disposition on our part as well as theirs to settle the matter, writing them a letter is less likely to generate unpleasant feelings than is filing an action for infringement.

110

EXHIBIT A

Also, as we note in the attached memorandum, there are a number of other patents in our portfolio which may or may not be infringed but as to which we cannot form a judgment because of lack of information as to the beam tube construction and other details of the Hewlett Packard device.

I am enclosing a copy of the memorandum which was prepared by my associate Mr. Pahl for your information and guidance. I will look forward to hearing from you further as to what action, if any, you want us to take with respect to this matter.

Yours very truly,

Clarence S. Lyon

CSL:lil
Enclosure

111

DEFENDANT

EXHIBIT
U. S. DIST. COURT
S. D. OF N. Y.

A I

LYON
Ex No. 4
3/11/74

June 19, 1970

Hewlett-Packard Company
1501 Pagemill Road
Palo Alto, California

Gentlemen: Re: Our File XKH-015

Our client, Frequency Electronics, Inc. of New Hyde Park, Long Island, New York has asked that we write to you concerning infringement of certain patents owned by them.

Our client owns U.S. Patents Nos. 2,972,115 and 2,960,663 originally issued to National Company, Inc., of Malden, Massachusetts and now transferred by assignment to Frequency Electronics, Inc. Copies of these patents are enclosed.

We have examined the instruction manual which you supply with your Model No. 5060A Cesium Beam Frequency Standard. Based on this study, and a study of the above-identified patents, we have advised our client that in our opinion your 5060A Cesium Beam Frequency Standard constitutes an infringement of one or more of the claims of these patents. Accordingly, we have been instructed to request that you immediately cease such infringing activities.

Our client has informed us however that they are willing to grant licenses under these patents at reasonable royalties should you desire to continue to manufacture cesium beam frequency standards incorporating the inventions covered by these patents.

Would you kindly write to us and inform us as to your position in this matter at your early convenience?

Yours very truly,

KENWAY, JENNEY & HILDRETH

By_____
Clarence S. Lyon

CSL:lll
Enclosures
cc to: Gideon Cashman, Esq.

4-1

DEFENDANT

EXHIBIT
U. S. DIST. COURT
S. D. OF N. Y.

A G

UNITED STATES DISTRICT COUI

FOR THE SOUTHERN DISTRICT OF N

FREQUENCY ELECTRONICS, INC., Plaintif

v.

NATIONAL RADIO COMPANY, INC., Defendant)
and)
LOUIS LERNER, Defendant and Third Party)
Plaintiff)
)
v.)
)
HERBERT W. KENWAY, et al, Third Party)
Defendants)

Civil Action.
No. 72 CIV. 412 (CL

Deposition of CLARENCE S. LYON, taken pursuant to Rule 30 of the Federal Rules of Civil Procedure before MARGARET M. SHEEHAN, a Notary Public within and for the Commonwealth of Massachusetts, at the offices of Newman, Meserve, King & Romero, 125 High Street, Boston, Massachusetts, commencing at 10:00 a.m., Monday, March 11, 1974.

APPEARANCES:

Pryor, Cashman & Sherman, 410 Park Avenue, New York, N.Y. 10022, by Sanford M. Goldman, Esq., and Amster & Rothstein, 50 East 42nd Street, New York, N.Y. 10017, by Daniel S. Ebenstein, Esq., for the Plaintiff.

Rich, May & Bilodeau, One State Street, Boston, Massachusetts, by Edwin J. Carr, Esq., for Louis Lerner, Defendant and Third Party Plaintiff.

Newman, Meserve, King & Romero, 125 High Street, Boston, Massachusetts, by Robert A. Romero, Jr., Esq for the Third Party Defendants.

* * * * * * * *

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* * * * * * * *

Q And prior to that, sir, your employment?

A I was partner with Kenway, Jenney & Hildreth.

Q For what period of time?

A I wasn't a partner from February 1, 1958, but I started there on Februnry 1, 1958, as an associate, and left there on March 31, 1972.

Q What type of work did you do at Kenway, Jenney?

A The firm is a firm of patent lawyers, and I practiced as an associate and later as a partner as a patent lawyer.

Q Did that work include work for National Radio Company or National Company, as it might have been known?

A It did.

Q During what period of time did you work for matters concerning National Company or National Radio Company?

A I am trying to remember when I began. Probably mid to late February, 1958, until I left the firm.

Q And you left Kenway, Jenney at what time, sir?

A I just told you, March 31, 1972.

Q Did you work for other clients besides National Radio Company during the period of time when you came to work with Kenway, Jenney as an associate and later as a partner for Kenway, Jenney until you left on March 31, 1972?

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the only two specific recollections I have, is of a late afternoon conference with Tom Bilodeau and Whitney Drake at the offices of Rich, May & Bilodeau when the agreement was discussed.

Q Can you tell us what was said?

A I cannot remember the substance of that conference. I can remember only that there was a substantial disagreement between Whitney and Tom.

Q Do you remember the matter of which there was a disagreement?

A No. It related to a commercial matter that didn't relate to me.

Q Did it relate to the Atomichron product line?

A It related to the agreement.

Q Did you offer any language to Mr. Drake or any other person with respect to the transfer of rights to the patents constituting the Atomichron product line at this time?

A What is this time?

Q In the fall or early winter of 1968.

A I thought you meant at that particular conference.

Q No.

A I have only a very vague recollection that as originally drafted, the agreement warranted the

validity of the patent. And I explained to Whitney that was not good professional practice, that it was almost impossible to warrant the validity of a patent without making an extensive investigation. And, therefore, I think -- this is my best recollection -- I instructed him to remove all warranties except for warranty of title. I think the Agreement so states, and that would be in accordance with my normal practice.

Q Had you seen drafts of the form of the Agreement at any time prior to February 3, 1969?

A I presume I did. I don't remember that I did, but I presume I did. Obviously I had a draft when I had that meeting in your office.

Q Had you seen drafts of the exhibits to the Agreement at any time prior to February 3, 1969?

A I prepared the agreement that pertained to the patents and trademarks. Other than that I have no recollection.

Q Had you seen drafts of the form of patent assignment?

A I just answered that. As to other exhibits, I have no recollection.

MR. ROMERO. I think you ought to show him the exhibits.

MR. CARR. I know the witness testified

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he hadn't seen this particular agreement, and also hadn't seen the signed agreement generally before the commencement of the litigation. I know he said before the Complaint. I'm trying to find out whether he had seen copies of drafts of the Agreement which might not have been used but subject to the same subject matter.

MR. ROMERO. He answered that question. What I am trying to point out is as you refer to other exhibits, you ought to show him the exhibit you are talking about.

Q All right. Just so we can make sure of the witness' testimony, I take it your testimony is that your best recollection is that you probably did see copies of drafts of the Purchase and Sale Agreement prior to February 3, 1969?

A I presume I did, because I presumably advised on the wording of the section I have discussed.

Q And you also say that you prepared the schedule of patents, which would be included and sold from National to Frequency?

A That is correct.

MR. ROMERO. I think you ought to have specific reference to that schedule and

ask him if that is what he prepared.

Q I show you the schedule which is attached to the Third Party Complaint, which is attached to the Exhibit F to the Agreement, which is attached to the original Complaint.

MR. ROMERO. Is this a one-page document, a two-page document?

MR. CARR. It is a one-page document.

Q And with respect to the list of patents, is that the list you prepared, Mr. Lyon?

A I prepared a list of patents to be assigned at Whitney Drake's request, which were to go with the Atomichron product line. I cannot testify that list is identical to the one I prepared, because that list is not typed on a typewriter from our office. But I can tell you I did prepare such a list at his request.

Q Do you remember whether you prepared a form of assignment?

A I think I answered that question earlier, and the answer was No.

Q Patent assignment. Did you prepare a form of trademark assignment?

A I have no recollection.

Q I show you a one-page document which was reproduced and constitutes part of the original Complaint, and is Exhibit G to the Agreement, and ask if that would refresh your recollection (handing).

A I may have prepared the draft of the assignment from which this assignment was taken. And the reason I say that is because it is a kind of a trademark assignment which is of a form which I might use. However, I did not prepare this specific assignment, because there is a paragraph in here which I would not have put in and whose effect I do not know. Except for that paragraph I would say I might have prepared that, but I have no specific recollection of preparing it.

Q Will you again look at the patent assignment, Mr. Lyon, which is Exhibit F, which is about two pages preceding?

A Yes, I have got it.

Q And would you tell me if there is anything in the language of that patent assignment which you could recognize as being a part of a form which you might have prepared or your office might have prepared at the time for us, for National Company?

A It looks to me -- that is not the way I would prepare

a patent assignment. There is language in there obviously which is similar to the assignment I might prepare, but there is a great deal of language which I would not have included.

Q During this period of time, by which I mean 1968, as you have testified to, up to February 3 of 1969, did National have any other patent counsel to your knowledge?

A Not to my knowledge, no.

Q And is it correct to state that Kenway & Jenney would have performed patent and trademark work as outside counsel if the matters were sent to an outside counsel?

A Correct. I presume so. I don't know who else Whitney Drake might have used.

Q You have no knowledge of the company using somebody else as patent or trademark counsel?

A No, I don't know.

Q And did you on a regular basis perform work for National as patent and trademark counsel during that time?

A Yes. But I would not have approved that assignment.

Q Now, you say there was a meeting in Rich, May & Bilodeau's office with Tom Bilodeau, Whitney Drake and yourself sometime in May, 1968?

to refer to that as the Memorandum or Memo.

(Preliminary Memorandum dated 11/14/68 marked "Lyon Exhibit 2 for Identification.")

Q Mr. Lyon, I show you Lyon Exhibit 2 and ask if you have ever seen the original or a copy of that before.

A Yes.

Q Can you tell me when you did see that before?

A Probably reasonably close to the date in the upper right-hand corner, November 14, 1968. I don't know whether I saw it on that day, but it would be within some days reasonably close to that.

Q Now, in connection with this case pending before the Southern District, about February 10, 1972, I asked you to get me a memorandum with respect to your participation in the prosecution of the Zacharias patent. Do you recall that, sir?

A A memorandum?

Q I'm sorry, an affidavit.

A Yes, I recall that.

MR. ROMERO. Why don't you show him the affidavit?

MR. CARR. Where is your copy? I would like to use this.

(Discussion off the record.)

(Affidavit of C. S. Lyon, Dated 2/10/72 marked "Lyon Exhibit 3 for Identification.")

Q Would you take a look at the copy of the affidavit, Mr. Lyon, please?

A Yes.

Q Do you recall signing that affidavit?

A Yes, I do.

Q It was done at my request, wasn't it, Mr. Lyon?

A Yes. I think you dictated --

MR. ROMERO. Let the record show Mr. Lyon has examined a three-page affidavit, at the bottom of the third page of which there is a date February 10, 1972, and it is signed by Clarence S. Lyon, notarized by a Lois I. Locke; that this appears as Page 107, 108 and 109 in a bound volume labeled Record Appendix, United States Court of Appeals for the Second District, in the case of Frequency Electronics, Inc., plaintiff versus National Radio Company, Inc., and Louis Lerner, defendants.

MR. CARR. It also happens to be filed as a document in this case.

Q Who is Lois I. Locke?

A She was a notary public in our office, my secretary at that time. She is not now.

Q Right. And attached to the affidavit was a letter

dated November 20, 1968, from you to Whitney Drake. Would you take a look at that, sir?

(Discussion off the record.)

Q The last paragraph of the letter of November 20, 1968, states in part, in substance, you were enclosing with the letter a certain memorandum prepared by your associate, Mr. Pahl. Did you include with that letter a copy of Lyon Exhibit 2?

A I presume I did.

Q Would you have included any other memorandum?

A No, none that I know of. That memorandum that is marked as Exhibit 2 was a memorandum that was prepared by Mr. Pahl at my request with respect to this subject matter, so presumably I would include that memorandum.

Q Do you have any other memorandums on the same subject matter other than Lyon Exhibit 2?

A None that I know of, not with respect to the Hewlett-Packard infringement.

Q Right. As I understand, you have testified that you acted as a consultant with respect to National Company?

A No. I was patent counsel.

Q Yes. But I take it your testimony was, Mr. Lyon, you did not meet regularly with Mr. Drake or the

president of National Company to review patent matters; is that correct?

A That is correct.

Q I take it your testimony was that you were paid on the basis of work performed rather than that of a retainer; is that correct?

A That is correct.

Q You had no periodic meetings with the engineering or scientific people to check to make sure they were performing the recordkeeping in accordance with acceptable standards; is that also true?

A That is also true.

Q Am I also correct in the fact you did work basically at National Company's request? Is that true?

A That is correct.

Q As distinguished from suggesting to National Company what ought to be done in order to keep them in the best possible patent posture; is that correct?

A That is correct.

Q Now, with that in mind, sir, tell me what was the event or conversation which prompted the letter of November 20, 1968, if you can recall?

A I am considering the privilege question.

Q It is already out in the open.

A No, the question you are asking.

Q What prompted the letter of November 20, 1968?

A Well, my best recollection is that someone at National -- who it was, I do not know -- raised the question as to whether the Hewlett-Packard device constituted an infringement of National Company's patents. Whitney Drake instructed us to make a study to determine if, in fact, there was any infringement. This letter of November 20, 1968, and the attached memorandum constitute our response to that request.

Q Do you know when you got the request from Mr. Drake?

A No.

Q Do you know how much time you spent on the study?

A Actually, Hank did the study for me. I didn't do the study myself.

Q What did you say, and I take it Hank is Mr. Pahl; is that correct?

A Right.

Q What did you ask him to do in connection with the request of National Company for the study?

A I have no specific recollection right now what I asked him to do, but I know what I would have asked him to do.

Q Before you tell me that, did you have a practice you followed with respect to studies which clients of the firm had asked you to do relative to possible infringements of patents?

A Yes.

Q It is a rather common request, isn't it?

A Correct.

Q And as a patent lawyer, you are an expert in making those kind of studies; isn't that true?

A I disclaim any expertise in making the studies.

Q You have done it repeated times though; isn't that true?

A Many times.

Q Because it ultimately can result in litigation; isn't that true?

A That is true.

Q Such as you testified you were taking depositions in New York relative to the Connecticut case?

A That was not a patent case.

Q You have handled patent cases though?

A I have.

Q You have acted as counsel for both defendants and plaintiffs in infringement cases; isn't that true?

A That is true.

Q Now, can you tell me what procedures and what was routinely done when this kind of request came in the office?

A Well, the first thing I would be concerned about was the scope of the request. By that I mean were we asked to make a study in connection with possible future litigation, or were we being asked a specific question, to give the management of the company the answer to one question so that they could then decide what they were going to do further.

Q Would you take a look at the letter of November 20, 1968, which is your response to Mr. Drake?

A Yes.

Q And can you by looking at that letter characterize the request of National Company to you as to whether it was of a scope which included a thought toward litigation as you have just testified to?

A No. I think the question that was directed to us at that time was simply does the Hewlett-Packard construction or constructions constitute an infringement of any of the Atomichron patents. And we so limited our inquiry, to my recollection.

Q The third paragraph of your letter though relates to legal action against Hewlett-Packard; am I correct,

sir?

A That is correct.

Q Are you saying that that was a sort of voluntary response on your part?

A My view at this time, obviously I can't remember specifically what happened, but my view at this time from reading the letter was I probably reported in general to Whitney what our conclusions were and said I would follow it up with a letter. And his probable next question was, Well, if we infringe, what do we do next?"

Q But that would get you into the litigation scope, wouldn't it, Mr. Lyon?

A Yes. But he didn't make any request we should condition it on. He just asked what we would do next. And I explained. And he said, "Would you put that in your letter too."

Q That is your best recollection now?

A My best recollection.

Q So the scope of investigation in accordance with the usual practice followed by the firm, as I understand your testimony --

A The usual practice followed by me.

Q By you, was that the review of the patent would be

Q Involving National Company.

A Nothing that I know of.

Q To your knowledge nothing. Did anybody get back to you to discuss the letter or the memorandum?

A No, not from National Company.

Q Not from National Company. Did you discuss this with anybody at National Company up to and including February 3, 1969?

A No.

Q The last you can recall of the whole matter was on November 20, 1968, when you sent the letter; is that correct?

A That is correct.

Q When you learned that National Company was going to sell the Atomichron, did you say anything to anybody about the necessity to transfer over rights against Hewlett-Packard?

MR. ROMERO. I object to the form of the question, the use of the word "necessity." Nobody has established there was any necessity at all in this regard.

MR. CARR. Change the question as to the advisability.

A No.

the memorandum, and this is Lyon Exhibit 2, the letters "HDP/i" and the date November 14, 1968, what do those represent, Mr. Lyon?

A To me?

Q To you. This was an office memorandum; is that correct?

A A memorandum prepared by -- HDP are Mr. Pahl's initials. It was our practice in the office whoever typed the memorandum to put their initial. So the "i" would represent the name of some person who typed this memorandum.

Q Do you remember the name of that person?

A No. Usually it would be his secretary. But I don't remember who she is or was. The November 14 is the date of the memorandum. The discussions would have taken place before that time, because presumably I would have discussed a draft of the memorandum with him.

Q Your practice was to discuss these matters before the memorandum was typed in final form; is that correct?

A That is correct.

Q Now, what did you and Mr. Pahl discuss in connection with this memo?

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A I can't recall specifically the discussions we had. I can recall one area we had a long discussion, and that was the infringement of the Mainberger patent. There was a funny wording in the claims of one of the Mainberger patents, a claim. And we discussed rather extensively whether that claim was infringed by the Hewlett-Packard construction as we understood the Hewlett-Packard construction. And we finally concluded it probably was. But as my recollection is now, we would have had to resort to the doctrine of equivalence in order to bring the Hewlett-Packard construction within that claim. The other thing I would do routinely, and I presume we did it in this instance, was that we were reviewing some nineteen patents for the question of infringement. And I would have ascertained from Hank the basis for his decision that these were the only two that were likely to be infringed, would have reviewed those patents with him. And I also would have reviewed his conclusions as to the infringement on the others. In other words, I wanted to understand the construction of the accused device, and I wanted to see how Hank was construing the claims to come to a conclusion they were not infringed. In other words,

we would have reviewed the whole matter in extenso before the whole matter was written. Then I would have asked for a draft memorandum. And following the preparation of a draft memorandum, we probably had another meeting at which we agreed as to the final form of the memorandum.

Q Did you have any meeting with any of your partners at that time concerning the memorandum or the letter?

A Not that I recall.

Q Is that the usual practice of the firm for partners to act independently, Mr. Lyon?

A It depends on the matter. I think what it comes down to is the significance of the opinion we are rendering. In general opinions, I guess that depends on the judgment of the individual partner. I can't recall in this particular instance I felt constrained to go to another partner, for two reasons: One, Mr. Pahl was a senior associate at that time and very competent, and I didn't think any of the partners were any more competent in judgment than he was in this matter. And the second thing was, I viewed it as a kind of preliminary review to see whether we would just drop the whole matter or we might go forward. And the opinion was going to a client who had only asked a

that gives him a right to bring a declaratory judgment action on the patent. And therefore Hewlett-Packard in this instance being in California and being aware of the extensive pretrial discovery procedures and pretrial procedures in California in addition to those specified in the Federal Rules, we recognized that if National was going to get into litigation in this matter, that California would be a very expensive place for them to be in litigation. I think it was in that connection that matter came up. In other words, by sending Hewlett-Packard a notice of infringement we opened up ourselves to a declaratory judgment suit in California.

Q Did you at any time prior to February 3, 1969, know or learn that a copy of Mr. Pahl's memorandum had been delivered over to Frequency Electronics in connection with the sale of the Atomichron products line to Frequency?

A Prior to?

Q Yes.

A No.

Q After?

A I did learn at the time.

Q That was at the time you were doing work for Frequency?

A No.

Q When did you learn?

A From a telephone call I got from Mr. Bloch of Frequency.

Q When was that?

A I don't recall, but my recollection is kind of like the summer of 1969.

Q Am I correct, Mr. Lyon, sometime prior to February 3, 1969, you were aware or you were told that National contemplated selling its entire Atomichron product line to Frequency Electronics?

MR. ROMERO. I object to the form of the question.

MR. CARR. Would you read the question?

(Question is read.)

MR. CARR. Let me revise the question. I will ask him directly. I am sure it has been asked before, but I want to do it.

Q Mr. Lyon, did you know prior to February 3, 1969, that National was going to sell its entire Atomichron product line to Frequency Electronics?

A Yes.

Q When you learned of the sale did you at that time

Q Sometime after the sale of the Atomichron from National to Frequency on February 3, 1969, you had an occasion to do some additional work on one or more of the patents which we have generally called the Atomichron patents; is that correct, sir?

A Correct.

Q When was that first done?

A Well, to give you the history of it is difficult, but let me try and do as best I can. I received a call after the sale was completed, I presume from Mr. Bloch of Frequency. And he indicated that he had received a copy of my letter and presumably memorandum. I don't know what he had received, as part of the documents that had been transferred to Frequency in connection with the sale. This was the first I knew that that letter had gone out to National Company. He indicated that he would like to pursue the matter against Hewlett-Packard. And he asked me if I would be, in view of the expertise we had in the field because of our prior association with National Company, if we would be free to represent him. And I said I would have to find out. I didn't know.

Q And what did you do then, sir?

A I said to Mr. Bloch I would find out. And he was kind of iffy about pursuing it. He was just kind of checking around. That was the impression he gave me in the telephone call. So subsequent to that telephone discussion I checked with National Radio, as it then was, to see if they had any objection to our representing Mr. Bloch or Frequency in this matter. And they said they did not.

Q Could I interrupt there for a moment. With whom did you speak at National Company?

A Mr. Drake.

Q Mr. Drake. Was there anything in writing you obtained from National waiving the privilege, so to speak?

A No.

Q I see. What did you ask him specifically as to your work?

A I told him what the conversation had been with Mr. Bloch. And I said Mr. Bloch was interested in pursuing the infringement matter with Hewlett-Packard and had inquired whether we would be available to pursue it. And I said to him would National Company object to him doing this. I remember Whitney saying No, we sold all our interest to Frequency. We have no further interest in the

matter.

Q They had no further interest in the matter?

A That is what he said.

Q Did you ask him because of your concern with the lawyer's privilege and you were asking a waiver of the privilege of Mr. Drake -- was that the reason for the inquiry?

A No.

Q What was the reason?

A I was principally concerned about possible conflict of interest.

Q I see. And did you obtain from National Company a letter or any kind of a memorial in writing to confirm the understanding you had reached with Mr. Drake?

A No, not that I recall.

Q Did you discuss this matter with anybody in the law firm of Kenway & Jenney?

A No.

Q Did you write a letter to Mr. Drake to record this?

A No, I don't recall that I did.

Q Do you remember whether you recorded it in your diary?

A It wouldn't have been a charge against National in the diary, and I had not yet been retained by Frequency.

So the matter wouldn't be recorded in the diary, so there was nobody to charge.

Q I take it you were concerned because of a conflict of interest?

A Possible conflict of interest.

Q And you called Mr. Drake to get released or get his approval from this possible conflict of interest?

A That is right.

Q And he gave you this?

A Right.

Q Do you recall the words he used in giving you this?

A I just gave them to you.

Q Other than what you gave, which is in substance, "We have no further interest in this matter." Is that right?

A That was the substance.

Q Or words to that effect. Did you discuss with him the matter of lawyer's privilege?

A No.

Q All right. Tell me what you did after receiving Mr. Drake's approval to proceed.

A I waited to hear from Mr. Bloch.

Q Then what happened?

A Then I received a letter from Pryor, Braun & Cashman, as I recall. There was a long interval. In other

words, Mr. Bloch called. I recall I talked to Mr. Drake within a few days thereafter. It may have been the same day or a few days later, but there wasn't a long interval between Mr. Bloch's call to me and my call to Mr. Drake. Thereafter there was a very long interval, and I thought the matter had died. So I went merrily about my other business.

Q At some point --

A I got a letter from Mr. Gideon Cashman of Pryor, Braun & Cashman.

Q And do you remember what the letter said?

A No. But it is possibly in existence.

Q Do you remember what you did as a result of the letter?

A My recollection is that either as a result of the letter or as a result of the letter plus telephone calls I ultimately wrote a notification of infringement to Hewlett-Packard on behalf of Frequency.

Q A notification?

A Of infringement.

Q Did you do any further research?

A Not that I recall.

Q But you wrote to Hewlett-Packard giving them notice of infringement?

A Alleging infringement.

" which was delivered to NRL in September, 1956."

Q What was your conclusion, if any, in the letter?

A I didn't have any conclusion. I also quoted some other letters, discussed some other materials that were in our files but which were ambiguous, which didn't help. So that is all my letter to Mr. Berritt, of June 10.

Q Did you make any request for authority to proceed?

A No, because in the course of our conversations it was assumed that we would be having a meeting, and I was going to report verbally and indicate the nature of the next step that should be taken, at the meeting.

Q What next occurred, sir?

A I guess in between I got an accountant's letter to which I responded also on June 21.

Q Accountant's letter from Frequency?

A Yes.

Q What did you respond to the accountants?

A They wanted to know of existing or pending litigation in which we are or may be involved. I said:

"1. We have been retained by Frequency Electronics, Inc. to investigate the

possibility of a claim by them against a third party on account of infringement of certain patents which they have acquired. No decision has yet been made as to whether to proceed with this claim."

Q What is the date of that letter?

A June 21, 1971. You might also be interested in amounts for the services performed. Through April 30, 1971, Frequency Electronics, Inc., is currently indebted to us in the amount of $1389.67. And since April 30 we have performed services in the approximate amount of $225 to June 21.

Q And what next occurred?

A I made an appointment with, I guess it was, Mr. Berritt -- I don't remember who it was -- at Pryor, Braun & Cashman to meet with him at the offices of Pryor, Braun & Cashman, and also with Mr. Bloch, who was supposed to be there to discuss what further steps we were going to take.

Q Was that the meeting held on July 16, 1971?

A Yes.

Q And did you do anything between the last letter that you sent, which I believe was dated June 10, 1971,

and the meeting on July 16th, other than the accountant's letter?

A Nothing that I can recall.

Q You went to the meeting in New York?

A Yes.

Q And what transpired at the meeting? What happened?

A Well, I got there about a quarter past 9 and there wasn't anybody in the office. It was absolutely empty, not even a secretary there, but the door was open. So I went in and sat down, and finally a secretary showed up about 9:30. And she told me nobody would be there before 10, and got me a cup of coffee. About 10 o'clock the people started to straggle in. I think the meeting started about 10:30. Present at the meeting were three members of Pryor, Braun & Cashman, whose names I don't remember, Mr. Amster, patent counsel for Frequency, Mr. Bloch and myself. And I essentially reported on the matters I had investigated to that date. Mr. Amster is also a patent lawyer, and I had previous contact with him in connection with another matter.

Q What was the other matter you had contact with Mr. Amster on?

MR. ROMERO. I object to that

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question as not relevant.

MR. CARR. O.K.

A We discussed all the things that I had reported on, and essentially I just reported the same things I went over here today, probably in greater detail. Mr. Amster on the question of public use was quite vehement. He said there was no question of public use. I said I couldn't make that statement, because I didn't know whether there was public use or not. I said one of the things, if you decide to proceed with this claim against Hewlett-Packard I would recommend we do is you authorize me or somebody on your behalf, maybe not me if you don't want to use me, to proceed to make an investigation of whether, in fact, these devices were included in those early Atomichrons. I said we can't tell at this point. I said, however, the other question is -- well, I was fairly certain on the Mainberger matter they were not included, because the Mainberger device was a device on which I had filed the patent application and I knew from my own practices at the time I filed the patent application that I would have been very careful it was not in prior use. But I didn't know about the Zacharias ones, because I wasn't there.

I suggested we make such an investigation.

I noted even if we were successful in that investigation, it was probable that the Claims 3 and 8, which were the claims of the Zacharias patent which were rather clearly infringed by the Hewlett-Packard Construction; in fact, they didn't deny the infringement, would probably be infringed by the Packard Article.

So we had to first conclude the Packard Article wasn't going to knock us out on Claims 3 and 8. Then we could proceed to further study on the other ones.

Mr. Amster, on the other hand, felt very strongly and advised Frequency while I was there, to my recollection, he thought the claims were probably invalid because of prior public use. I couldn't agree with him on that subject.

The talk then turned; Mr. Bloch raised the question as to whether he had to pay the notes that he owed to National, and the discussion started to get into a question of that. I said, "Look, you have to let me leave, because my prior representation was with National and any involvement between you and National I am only empowered to represent you in this specific

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area. I must be free to represent National. So if you are going to discuss these things, please let me leave the room.

Mr. Amster said, "You don't have to leave the room, because we are not going to discuss anything of substance." Then there was some discussion about Mr. Leonard, which I didn't understand. The meeting broke up at 12:30, and we went to lunch with Mr. Amster and Mr. Bloch. And we talked about Japan. I will finish the complete day. I returned to Boston. And when I got back to Boston I picked up the telephone and called Tom Bilodeau and told him what happened at the meeting, what transpired and the intimation that Frequency might be taking some action against National.

Q At that time did you know National was in bankruptcy in Chapter 11?

A Yes.

Q In fact, hadn't Kenway & Jenney filed a petition before the Bankruptcy Court to be paid by National?

A That I don't know. We may very well have. It was kind of a routine matter. But I knew they were in bankruptcy.

Q Are you familiar with the inventions which are

embodied in the Atomichron as was sold or sold to the public or purchasers at or about February 3, 1969?

A No.

Q Have you ever seen an Atomichron?

A Yes.

Q Where was that?

A At National Company.

Q When was that?

A It was immediately after Art McCoubrey left their employment.

Q Do you have any idea?

A I don't remember the year, but it was immediately after that. I saw the housing with the Atomichron in it sitting there many times. What was behind the housing, I never looked.

Q Did you see it at any time? Was that the only time you saw the Atomichron?

A What do you mean by the Atomichron? I suppose that is the question.

Q What I am interested in knowing is whether or not you looked inside the steel cabinet of the device to determine whether or not there was an embodiment of any one or more of the nineteen patents in the

particular device you saw.

A No. In many cases you couldn't tell by looking. Electronic circuitry, you couldn't tell by looking. You would have to the schematic diagram. You would usually ask the engineer.

Q Did you know of your own knowledge whether or not the Zacharias patent was embodied in any Atomichron ever sold by National?

A Of my own knowledge, no. I have heard from engineers that it was, but I don't know.

Q You don't know of your own knowledge.

A Claims 3 and 8 refer to circuit configuration. You couldn't tell just by looking.

Q Did you know whether or not the Atomichron can be manufactured and sold without the utilization of Claims 3 and 8?

A No, I don't know.

Q A device which will perform and meet the standards that are set forth on that brochure in the file of your office, that is what I mean by an Atomichron.

A You mean can you make a cesium beam frequency standard without using 3 and 8? I think you probably can.

Q Was that ever discussed?

A No.

Q Was it discussed with Frequency Electronics?

A I never discussed it.

Q You had a brochure in your office that said Atomichron, and a price; is that correct?

A Yes, it had a schematic diagram on it.

Q Had you ever seen the instruction manual or book for the Atomichron?

A Yes.

Q Did you ever work on it with any of the engineers?

A I worked on it when I worked on the Mainberger patent, yes. I don't know whether I used the instruction manual. I know we worked from schematic diagrams.

Q So you knew that the Atomichron was a device which had certain characteristics; is that correct?

A I knew the Atomichron was a cesium beam frequency standard.

Q You knew the Atomichron was a cesium beam frequency standard?

A Yes.

Q With certain limits as to the what, ability to produce some kind of constant frequency emission; is that correct? Would that be a fair characterization?

A That was the object of the device.

SECOND DAY

DEFENDANT

EXHIBIT
U. S. DIST. COURT
S. D. OF N. Y.

A H

UNITED STATES DISTRICT COUI

FOR THE SOUTHERN DISTRICT OF NI

FREQUENCY ELECTRONICS, INC., Plaintiff v. NATIONAL RADIO COMPANY, INC., Defendant and LOUIS LERNER, Defendant and Third Party Plaintiff v. HERBERT W. KENWAY, et al, Third Party Defendants	Civil Action No. 72 Civ 412.

Deposition of CLARENCE S. LYON, resumed, before MARGARET M. SHEEHAN, a Notary Public within and for the Commonwealth of Massachusetts, pursuant to Rule 30 of the Federal Rules of Civil Procedure, at the offices of Newman, Meserve, King & Romero, 125 High Street, Boston, Massachusetts, commencing at 10:00 a.m., Tuesday, August 13, 1974.

This could also be true if the patents were assigned from third parties. In fact, I don't think any of the Atomichron patents were. I think they were all inventions made by inventors employed by National Company and National Company had legal title to them, as they were not in the inventors or some other third party.

Q Had National at that time, to your knowledge, made any licenses of any rights under the Atomichron patents to any other person?

A Not to my best recollection.

Q Would your practice have required that a reference to such license or other rights in those patents be referred to in the agreement or in the bill of sale?

A If the patents were subject to a license to a third party and you were assigning the parties, you would have to tell the third party that the patents were assigned subject to the license.

Q I call your attention to Page 3 of the purchase and sale agreement, Mr. Lyon, which reads in part as follows, under Section 5:

"NCI warrants that it has full legal title to the items conveyed hereunder, and it has the right and authority to

" convey the same. No other warranties are made in connection therewith whether express or implied."

Do you recall that language particularly in view of the comment made by Mr. Drake in his letter to Mr. Bilodeau which says, as I have quoted in the record here, that the matters were reviewed extensively with patent counsel?

A Where did you read from?

Q Right here. Let me quote also, Mr. Lyon, please, if I may, the paragraph ahead of the one that I quoted, which reads as follows:

"Patents shall be conveyed by assignment in the form hereto attached as Exhibit F."

Now do you have any recollection of that language, both of those which I quoted in the purchase agreement to Mr. Lyon?

A I have no present specific recollection of the language, that specific language, but I would be satisfied as a legal matter that that was the conveyance of legal title to the patents.

MR. GOLDMAN. I move to strike the last portion of Mr. Lyon's testimony as not responsive to any question.

Q You had previously testified that you had told Mr. Drake, I believe, that the purchase agreement should not contain a warranty of patent validity, is that correct?

A That is correct.

Q Would you please take a look at Page 3 and the language which I have just read and also Exhibit F entitled Assignment of Patents, which reads in part as follows:

> "Now therefore, for good and valuable consideration, receipt of which is hereby acknowledged, said National Radio Company, Inc., hereby assigns to said Frequency Electronics, Inc., all right, title and interest in and to the patents and inventions claimed therein together with the know-how associated therewith, said patents bearing the following registration numbers and dates."

That is incomplete. Would you please read that together with the matters which I have quoted on Page 3 of the purchase and sale agreement in advance of my next question.

(Witness complies.)

Q In your opinion, Mr. Lyon, do those words contain any warranty of patent validity?

MR. ROMERO. I object to the question and instruct the witness not to answer.

MR. GOLDMAN. Objection.

MR. CARR. What is the basis for that, Mr. Romero?

MR. ROMERO. Mr. Lyon has been called as a fact witness, and any question that calls for an opinion is not proper.

MR. CARR. Even though he was paid in this case to act as patent counsel, and he was paid in this case to represent National Company in connection with this transaction, he is unable to express an opinion as to the meaning of that language?

MR. GOLDMAN. Mr. Carr, may I detail the basis for my objection?

MR. CARR. I want it on the record. I would like to point out to all parties present this witness is not under the subpoena power of the court in New York, and we are going to have the witness back here or we are going to have a major problem on this question as to his opinion

recollection that we discussed it. I don't recall that we had a dispute about it.

Q All right. I'm trying to establish in fact that there was no disagreement.

A I cannot testify that there was no dispute, but I have no recollection of a dispute. A dispute is something you would be likely to recall, and I don't recall it.

Q Yes. Mr. Lyon, you had previously testified again that you had counselled Mr. Drake that the agreement should contain no representation or warranty of the patent validity, am I correct?

A For the fourteenth time, yes.

Q I'm doing it for a purpose, Mr. Lyon, as you know. Do you recall whether or not you were satisfied that the document that you had reviewed on or about January 28, 1969, met your requirements that the document contained no representation or warranty of patent validity?

A Yes.

Q Mr. Lyon, would you please look at the purchase and sale agreement in final form as dated the 3rd day of February, 1969, and tell me as best you can recall whether or not that agreement is in the form of the

agreement which was attached to the letter of January 28, 1969?

A I couldn't possibly recall.

Q Will you please take a look at this agreement on Page 3, Exhibit F, and tell me whether the language in that agreement, which is before you, which is the executed copy of the purchase and sale agreement, meets your objection that no representation or warranty of patent validity should be set forth in that agreement?

MR. GOLDMAN. I think I will object on the grounds of relevance. I don't see what Mr. Lyon's belief or opinion either then or now as to whether this representation goes so far and no further -- I don't see that that is relevant to the issue in this case, which is what in fact the legal effect of the representation of the warranty is.

MR. CARR. Of course, what we are doing is establishing what was in the minds of the parties.

A I would say that the language on Page 3 of the purchase and sale agreement and Exhibit F would satisfy me, if that is the only language in the agreement, and I haven't read the whole thing recently.

But just referring to that language, if that was the only language concerning representations as to validity, the only language relevant to those representations, I would be satisfied that none were made under that agreement.

MR. CARR. I have no further questions of this witness.

(Short recess.)

MR. GOLDMAN. Gentlemen, I would like to make a statement for the record since Mr. Carr has concluded his examination. We are not going to ask any questions of Mr. Lyon at this time, and I would like to state for the record why that is and why it may be necessary to seek to ask Mr. Lyon questions at some later time.

In the first place, I think it should be noted that this deposition and the deposition in March of both Mr. Lyon and other representatives of the Kenway & Jenney firm arose in connection with Mr. Carr on behalf of Mr. Lerner having joined the Kenway & Jenney firm and Mr. Lyon as defendants in the New York action. And the deposition was Mr. Carr's, Mr. Lerner's, and was

UNITED STATES DISTRICT C
for the
SOUTHERN DISTRICT OF NEW

DEFENDANT
EXHIBIT D
U. S. DIST. COURT
S. D. OF N. Y.

A J

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FREQUENCY ELECTRONICS, INC.,
Plaintiff

v. : 72 CIV. 412 (CLB)

NATIONAL RADIO COMPANY, INC. and
LOUIS LERNER,
Defendants

- -

Deposition of FRANK F. ODDI, taken before ETHEL W. SHEEHAN, Notary Public, pursuant to Rule 30 of the Federal Rules of Civil Procedure, at the offices of Rich, May & Bilodeau, One State Street, Boston, Massachusetts, commencing at 10:00 a.m. on Wednesday, November 27, 1974.

APPEARANCES:

Pryor, Braun, Cashman & Sherman, 410 Park Avenue, New York, New York, by Sanford M. Goldman, Esq., of Counsel, for the Plaintiff.

Leonard I Schreiber, Esq., 30 Park Avenue, New York, New York
and
Rich, May & Bilodeau, One State Street, Boston, Massachusetts, by Edwin J. Carr, Esq., of Counsel, for the Defendant Louis C. Lerner.

PRESENT:

Martin Block

I N D E X

Witness	Direct	Cross	Redirect	Recross
Frank F. Oddi	3	47	74	

Oddi Exhibits

1 Iden.	NRCI Board of Directors Meeting, November 22, 1968.	9
2 Iden.	Letter, November 20, 1968, Mr. Drake from Mr. Lyon.	16
3 Iden.	NRCI Board of Directors Meeting, January 31, 1969.	34
4 Iden.	Letter, February 12, 1969, NRCI from Mr. Cashman and bill for $5000 dated February 12, 1969.	44
5 Iden.	Letter, February 27, 1969, Mr. Oddi to Board of Directors.	45
6 Iden.	NRCI Board of Directors Meeting, February 28, 1969.	76

* * * * *

Stipulation

It is hereby stipulated and agreed by and between counsel for the respective parties that the reading, signing and filing of the deposition may be waived.

It is further stipulated and agreed that all objections except as to the form of the question are reserved to the time of trial.

FRANK F. ODDI, a witness called by the Defendant Louis Lerner, having been first duly sworn, on oath deposes and says as follows:

Direct Examination

Q (By Mr. Carr) Please state your full name.

A Frank F. Oddi.

Q And your home address?

A 39 Myopia Hill Road, Winchester, Massachusetts.

Q What is your present business occupation?

A I am president of ERE Industries, Inc.

Q They are located where?

A They are located in Medford, Massachusetts.

Q Were you at any time affiliated with National Radio

Company, Inc.?

A I was.

Q In what capacity?

A I was president of the company from approximately 1966 through 1968.

Q Could you briefly summarize your educational background, Mr. Oddi?

A Yes. I am a high school graduate, a college graduate, with additional financial training.

Q Could you briefly tell us what your experience and education is in the financial area?

A In the financial area, going backward, my financial position, the last one I had was financial executive with worldwide responsibilities for International Telephone and Telegraph Company. I was chief financial executive for all government operations and European operations for Raytheon Company. I was budget manager and systems and procedures manager for the Hallicrafters Company. And I served four years in public accounting.

Q Would it be accurate to say that substantially all of your professional experience has been substantially related to financial matters?

A That is correct, financial, and general management

in later years.

Q Financial and general management?

A Right.

Q Directing your attention to the fall of 1968 and the plaintiff in this case, Frequency Electronics Company, Inc., please tell me what your first recollection is of any contact, telephone, letter, personal meeting, with Frequency or Mr. Block or anyone who represented themselves as attorneys, agents or in any way for or on behalf of Frequency.

A My recollection is not clear, but I believe that Mr. Martin Block contacted me by telephone expressing an interest in our "Atomichron" operations, and as a result of that telephone call and brief conversation, we invited him down to acquaint himself with and discuss these operations, which he did.

Q When you say "invited him down," would that be to the --

A To the premises of National Radio in Melrose.

Q In Melrose, Massachusetts?

A That is correct.

Q Can you briefly tell me what is sometimes referred to as the Atomichron and also the Atomichron product line?

A The Atomichron, as I understand it -- and the whole thing was never that clear to me -- is a highly technical piece of apparatus which has the capability of measuring time to a very high degree, which was an almost advanced state of the art. Specifically, the term tossed around, which we would use, is that it could measure time to an accuracy of 30 seconds and a great number of years, something like that. Its application might be used in any type of a system where such accuracy was highly desirable; for example, applications had been explored in the area of air traffic control, to use that term loosely.

Q And the Atomichron product line?

A Now, the Atomichron -- All right. The company, as I recall it, had an Atomichron that had been developed for the Navy, developed and sold to the Navy, and it is my recollection had been received well. However, this piece of equipment was a quite high-priced piece of equipment, and for the commercial market it was necessary, the company believed, to develop a less costly piece of equipment with probably lesser performance, lesser performance specifications, which the company then

proceeded to do or attempt to do, and finally sub-contracted this development to another engineering company.

Q. When you came with National Company as president in 1966, was National marketing the machine or device known as the Atomichron?

A National was attempting to market the machine and device, and in that period may or may not have sold a very limited number.

Q Is it the substance of your testimony that the Atomichron is a name which was assigned to a device manufactured by National during that period of time, your presidency, '66 through '68, which had something to do with the measurement of time or the establishment of frequency?

A That is correct. I believe, my recollection is that there was a Cesium beam tube that was the heart of this thing -- don't ask me what way; I couldn't tell you -- the unique part of the device.

Q Now, what next happened with respect to the Atomichron, the interest of Frequency after the visit to National's plant in the fall of 1968?

A Well, first I want to make it clear for the record that my own position in National Radio at that time

was a changed one. By that I mean my title was president and my responsibilities were limited to the negotiation of acquisitions and, in this case, divestitures. As far as operations of the company were concerned, I had no responsibility, Point 1. Point 2, and in answer to your question, as I recall it, and I am not very clear on it, as a result of this phone call Mr. Block came down, and I believe on one of his trips -- and I think there were two or three -- he had another gentleman with him -- I don't remember who it was -- maybe it was one or two -- and spent at least a day, and I think it was about two days at some point, whether it was the first trip or the second trip, talking with the people in the company to become sufficiently familiar with, I would have to assume sufficiently familiar with the entire operation as well as what it was that the company had to sell. I seem to recall specifically a list -- I will call it an equipment list -- it was some tools and some dies, and so forth -- that was given at some point, and this list was examined and, as I recall it, there was even some question as to whether all of that list was still there, which was a point of discussion.

Anyway, after the time spent there by Mr. Block and I think at least one of his other people, we got into a negotiation stage and that, I think, took one, possibly two sessions. And having reached a basic agreement, I wrote up an outline of the agreement, which I am sure the company has somewhere, and I believe that was the basis of the agreement as it was finally resolved.

Q Mr. Oddi, I show you a copy of minutes of the Board of Directors of National Company for the regular meeting of the directors held November 22, 1968, and ask if you can identify these. Specifically, have you seen these before, and could you identify these?

A I cannot specifically identify them, but I assume that these are the minutes of that meeting. I take no exception to them.

Q All right.

MR. GOLDMAN. Mr. Carr, do you want to mark that?

MR. CARR. Yes. I'd like to have this marked as Oddi Exhibit 1.

("National Radio Company, Inc., Regular Meeting of the Board of Directors, November 22, 1968," marked Oddi Exhibit 1 for Identification.)

prior to this?

Q Yes, sir, that is the question.

A I would expect that it was in order for me to report on it.

Q I show to you a seven-page document entitled "Preliminary Memorandum," dated November 14, 1968, at the top of the page the initials "HDP/i," which was previously in this case introduced as Plaintiff's Exhibit No. 1 at Mr. Lerner's deposition on April 19, 1972. Would you take a look at that, Mr. Oddi, and tell me whether or not you recall seeing that at or about that time or at any time prior to today?

A I don't recall seeing this at any time.

Q I show to you a copy of a letter dated November 20, 1968, consisting of two pages to Whitney Drake from Clarence S. Lyon, and I ask you: Have you seen that at or about the date thereof, November 20, 1968?

(Discussion off the record.)

A I don't recall seeing this letter at any time.

MR. CARR. I think I would like to have marked, however, for identification the two-page letter to Mr. Drake from Mr. Lyon dated November 20, 1968.

(Two-page letter dated November 20, 1968, to Whitney Drake from Clarence S. Lyon marked Oddi Exhibit 2 for Identification.)

(Discussion off the record.)

Q Mr. Oddi, I show to you a copy of Lyon Exhibit 6, which was identified in this case in the deposition of Attorney Clarence Lyon held on August 13, 1974, consisting of a letter dated January 3, 1969, "To the Board of Directors, National Radio Company, Inc.," and signed by Frank F. Oddi, and three additional pages thereto being a "Letter Agreement" signed by Mr. Lazar on behalf of Frequency, and signed by Mr. Oddi on behalf of National, and ask if you can identify that, sir.

(Discussion off the record.)

A I believe this letter agreement is one that I wrote. I believe that's my signature, and I don't doubt that this accompanying letter or the letter of transmittal is valid, except that I don't understand why it is not signed by me.

Q Do you have a recollection of the practice that you employed at or about that time with respect to sending a Memorandum of Terms to the Directors, Mr. Oddi?

A Yes. This type of a memorandum is the common type

that I would employ in a negotiation with an individual, which was the business basis -- and when I say "letter agreement," this would be a business agreement, in this case with Mr. Block, wherein we had reached, we both believed that we had reached a business agreement, and this would then later be implemented by the legal people in terms of a formal legal agreement. It was my practice to outline in this manner what I believed to be the pertinent points and the terms of such an agreement.

Q Would you please refer to the letter agreement and the second page thereof under the paragraph entitled, "NCRI Causes," and tell me what your recollection is of any discussion with anyone at Frequency concerning the assignment of causes of action.

MR. GOLDMAN. Mr. Carr, at this time I want to make an objection for the record. I am not going to object to any questions you may ask Mr. Oddi concerning discussions with Mr. Block or anyone else at Frequency on the subject of the Atomichron deal, but I am going to object to any attempt to ascertain the meaning of that document as a contract on the grounds that it is not the final agreement between the parties;

there is a final signed contract between the parties, and I think the rights of the parties are determined by that final signed contract and not by any prior deal, memo, or letter of intent or understanding.

MR. CARR. All right.

THE WITNESS. May I respond?

Q You can still respond.

A Frankly, I really have no memory as to what in particular this would apply to.

Q Do you recall discussing with Mr. Block or anyone at Frequency the matter of a cause of action against Hewlett Packard?

A No, I don't.

Q Do you recall delivering to Mr. Block or anyone at Frequency a copy of the "Preliminary Memorandum" which we have referred to here as Exhibit 1 in the Lerner deposition?

A No, I do not.

Q Would you refer to Page 2 of the agreement, so-called agreement, attached to Lyon Exhibit 6, the paragraph beginning with the sentence which reads as follows: "The agreement as outlined above was arrived at by Frank F. Oddi representing National Radio Company,

Inc., and Martin B. Block representing Frequency Electronics, Inc., at a meeting at the office of Frequency Electronics on 25 November 1968 and subsequent conversations by telephone between the same two individuals during the period 29 November and 30 December 1968." And if you'd tell me your recollection of that meeting on 25 November?

A I do now recall that we did hold a meeting at Mt. Block's premises. As a matter of fact, I believe Mr. Block picked me up at the airport, and I believe there too another gentleman was present, and we discussed, perhaps finalized at that point the essence of this agreement. I remember that vaguely, but I do remember visiting his premises, his business premises.

Q Did you know the business in which Frequency was engaged at that time?

A I believe I was generally aware. As a matter of fact, I believe Mr. Block described to me the business that they were in at that time, but I couldn't tell you now with any clarity what it was.

Q Do you remember anything that Mr. Block might have said to you at that time about the business of Frequency with reference to the Atomichron?

A I recall very generally that they felt that they had the capability to do with the Atomichron what National had failed to do in terms of, one, getting the commercial version to really work and, secondly, to better market it in that they had an in-house capability to accomplish these things. That is generally what I recall.

Q In Oddi Exhibit 1, which is the Minutes of the Board's meeting of November 22, 1968, the first page thereof states that you as president in advising the Board of the negotiations for the possible sale of the Atomichron line advanced reasons for the sale. I show you those Minutes. Can you tell me briefly what those reasons were, Mr. Oddi?

A I believe, as I recall, our two basic reasons for this sale were, one, the company had not been fully successful because of basic in-house capability in making this a really workable device in spite of the fact that as a result of some subcontracting it supposedly had a working commercial version that was supposedly marketable. For some reason, something was always going slightly wrong, and we were unable to quite come up with the answer except

after much time we would correct one bug and almost concurrently another bug would develop somewhere in some manner. Secondly, the company at this point was in need of money, which in itself was a good reason for this sale. And, third, sort of based on both, the company had been spending money on this, and if it did not sell it they would need to either abandon it or continue to put more money into it.

So these three basic reasons sort of inter-dependent were, I am quite sure, the reasons referred to in the Minutes.

Q What is your recollection of what Mr. Block said to you as the reasons why Frequency was interested in purchasing the Atomichron line, and that is at the meeting of 25 November or at any time -- any time, let's say, prior to the closing?

A It seems to me that during the course of our discussions and/or negotiations Mr. Block mentioned to me -- in fact, I think he made me acquainted with the type of things they were doing in the company, and he felt that -- Let's see. It seemed to me that they had a product line in the company that was basically similar in a much more basic concept to the Atomichron line, some kind of a frequency --

Q Can you tell us what those discussions were, please, Mr. Oddi?

A The discussions centered around the inventories and particularly the equipments. As I recall it, the inventory and equipment list, upon examination by Mr. Block and/or his associates, listed more items than were present in physical identification; in other words, not all of the items on that list were on minute examination there, as I recall it. And, secondly, I recall very vaguely that I believe there was a contention by Mr. Block that some of the items on that equipment list were not really usable. That is generally about what I recall.

Q Do you recall any discussion with respect to the patents?

A I don't recall any discussion at all, except that he had been, I believe, at that time furnished with a list of patents -- and that was it. In other words, I was in no position to discuss it.

Q Do you recall anything that Mr. Block said to you or, to your knowledge, to anyone at National Company or anyone at Frequency might have said to anyone at National Company with respect to the patents?

A I do not recall that anyone said anything memorable

to me or to anyone in the company in my presence with respect to the patents.

Q To your knowledge did anyone --

A Excuse me. Just let me say, whether it was said or implied -- and I suppose at some time it was said, but I don't remember it specifically -- this list of patents was one which at some point he was free to review with our patent attorneys, our in-house people acquainted with them.

MR. GOLDMAN. I move that the last answer be stricken. Mr. Oddi appears to be making a statement on the basis of what he assumes was implied rather than on the basis of a recollection of anybody having stated that to the plaintiff.

MR. CARR. Maybe the witness would like to restate his answer to whether or not he recalls --

A (Continuing) I don't recall any specific reference to the patents as such, conversations.

Q Do you recall saying to anyone at Frequency prior to the closing that they should check with National's patent counsel with respect to the patents?

A Not specifically, I don't.

Q Did you give or did you urge people at Frequency to come to National to make an inspection of what they

were buying at any time prior to the closing?

A Well, we didn't urge them to, but I am certain that we made all of the people in the company available to them with whom they could hold discussions and inquiries and what-have-you. This is the period during which, as I recall it, there were about one or two days spent on our premises by Mr. Block and/or his people. What they did during that period specifically, I don't know.

Q Do you recall Mr. Block or anyone at Frequency saying to you that the Zacharias patent was the important patent in this transaction?

A No, I do not.

Q Do you recall Mr. Block or anyone at Frequency saying to anyone else at National, or did you learn that they said to anyone else at National, that the Zacharias patent was the important patent in this transaction?

A I have no recollection of any statement to me or anyone else in my presence of that nature.

Q Do you recall Mr. Block or anyone at Frequency saying to you that they would not go through with the transaction if the Zacharias patent was not valid?

A No, I do not.

Q In connection with your negotiations with Mr. Block, did you gain any kind of an understanding or implication that they were buying the Atomichron product line because of the Zacharias patent?

MR. GOLDMAN. I object to the question. I think what he may have gained by implication is irrelevant.

MR. CARR. We will let it stand.

A Do I answer?

Q You can answer.

A No, I do not.

Q Did Mr. Block or anyone at Frequency say to you personally that any one particular or several patents were so important that they would not go through with the transaction if these patents proved to be invalid?

A I do not recall any such statement.

Q Do you recall any discussion at all by Mr. Block or anyone at Frequency with respect to the validity of the patents which were being purchased in this transaction?

A Not with me, no.

Q Do you have any recollection of Mr. Block or anyone

at Frequency concerning the discussion of the validity of the patents in this transaction with anyone else?

A No, I don't but I'd like to again say that because of my peculiar position at that time I do not recall being present at any time where discussions were held between Mr. Block and any other people in the company.

Q Did you learn of any such discussion through any other source, Mr. Oddi, at any time?

A I do not recall learning of any such discussion from any other source.

Q That means at any time even up to the date of this deposition?

A That is correct.

Q So you have no knowledge either directly or indirectly, Mr. Oddi, if I understand the testimony, that Mr. Block or anyone at Frequency had ever said to you or anyone else at National anything about patent validity and the importance of such patent validity in connection with the transaction?

A I have no knowledge or recollection of any such statement directly or indirectly.

Q I show to you a copy of Lyon Exhibit 7 which was

marked for identification at the Lyon deposition on August 13, 1974, which is an inter-office correspondence from Mr. Drake to certain named persons including F. F. Oddi, as indicated, and purports to be a draft of the Purchase and Sale Agreement with respect to the Atomichron. I show that to you, sir, and I ask you: Do you recall receiving a copy of that?

A I do not recall specifically receiving a copy of this, no. I am not stating that I didn't, but I don't specifically recall the item. Again, because of the peculiar position I was in, there is a possibility that I may have received it and frankly didn't even read it or just glanced at it, because I believe at that time I had resigned from my position with the company.

Q Would you look at Paragraph 8 of the draft of January 1, 1969, which consists of part of Lyon Exhibit 7 and read that, sir?

A I have read it.

MR. GOLDMAN. May I see that, Mr. Carr?

MR. CARR. Oh, yes. (Document handed to counsel.)

Q Do you have any recollection at this time as to any

discussion which was had between you or anyone at National and Mr. Block or anyone at Frequency concerning that Paragraph 8, and in particular the language which states that, "The net proceeds of any cause of action presently accrued or pending in relation to the Atomichron product line should be shared equally between FEI and NRCI."

A Now, your question again was what?

Q Do you recall any discussion with respect to that paragraph, and more particularly to those words that I just read?

A I don't recall any discussion as such, no.

Q What is your memory as to what those words relate to?

A My memory is vague, but it seemed to me that National had a possible basis of action against someone, that -- well, it was in the stage of possible, as I recall it -- nothing had been done to pursue it -- and that this referred to that possible or probable action. My memory is really very vague on that.

Q Do you recall discussing this action with any attorney with Kenway, Jenney, or more particularly Mr. Lyon?

A No, I do not.

Q I show to you Paragraph 8 of the signed Purchase and Sale Agreement which is attached as Exhibit 1 to the Complaint in this case, and I refer you to Paragraph 8 there. I also refer to you the fact that there is added an additional sentence which says, "NRCI will use its best efforts to have and/or to cause its attorneys and/or agents to deliver any correspondence or records of such causes of action to FEI."

Do you have any recollection of what that referred to?

A None at all.

Q Do you recall discussing with anyone at Kenway, Jenney, patent law firm of Boston, the possible cause of action by National against Hewlett Packard?

A No, I do not, nor would I have normally.

Q Who in National would normally or usually have had such discussions with Mr. Lyon or any other attorney at Kenway, Jenney?

A This type of discussion would have been held by either or both of the company's in-house attorney or the Contracts Department, depending on the nature of the action. This would be the company's Contracts Administration Department and/or the company's

attorney.

Q And the company's attorney was who, Mr. Oddi?

A At that time, Whitney Drake.

Q Who was in charge of the company's Contract Administration Department?

A At this time?

Q Yes, sir.

A Well, there is a fine line here. I think the actual named head of that was Green.

Q Green?

A What is his first name?

Q Leonard Green?

A Leonard Green, I believe, was the named head of the Contracts Administration Department. However, and I am not certain at this date exactly, John Conway to whom the Contracts Administration Department reported up to some recent date, if not at that date, and who had been the head of the Contracts Administration Department, would normally have had a heavy hand in anything of significance.

MR. GOLDMAN. Can we take a five-minute break?

(Brief recess.)

Q Mr. Oddi, I show to you a copy of the Minutes of the National Radio Company regular meeting of the Board of Directors held January 31, 1969, consisting of a total of eight pages, and direct your attention to the bottom of the first page thereof with respect to the matters relating to the negotiations with FEI concerning the sale of the Atomichron business, and ask if you could look at that and tell me whether you recollect that meeting and if you can identify those Minutes.

A I believe these are the Minutes, correct Minutes of that meeting.

MR. CARR. Could we mark this as Oddi Exhibit 2?

(National Radio Company, Inc., Regular Meeting of the Board of Directors, January 31, 1969, marked Oddi Exhibit 3 for Identification.)

Q Referring to the second page of the Minutes which is Oddi Exhibit 3, what is your recollection of the matter relating to royalty payments?

A As I recall it from looking at the agreement here, there was a royalty arrangement which was 5% of sales over a given amount and up to a maximum amount; that is, the royalty could be a maximum

for a certain period. And, more specifically, this directed itself to the fact that the company could be in an advantageous position because the National Company felt that Frequency Electronics had a better capability for making this equipment work and for marketing it.

Q I direct your attention to Paragraph 5 of the agreement as signed, which is Exhibit 1 to the Complaint in this case, and I direct your attention to Paragraph 5 in the draft agreement, Lyon Exhibit 7. What is your recollection of any discussion that you may have had with Mr. Drake concerning the fact that the agreement states that all items of inventory and machinery are to be conveyed in an "as is" condition? Do you have any recollection of that?

A Sorry. You were directing my attention to this --

Q Paragraph 5 here, and Paragraph 5 in the draft, yes, sir.

A And your question was? Was my recollection with respect --

Q Of any conversation with Mr. Drake with respect to that language.

A Only generally -- that, particularly with respect to

the inventory and equipment about which there had been some question, one, they would pay only for exactly what they got; in other words, if for any reason the list was incomplete at the time of delivery or some of the items happened to be missing, then, of course, they would be deducted. And, secondly, that because the equipment had been there and there had been some question as to whether it was operable or operating properly, that having been viewed, that the sale would be as is.

Q Did the company make any representation, or was it the intention of the company to make any representation as to the operability of the equipment?

MR. GOLDMAN. I object to the question. The company's intention is totally irrelevant.

Q Did you discuss with Mr. Drake anything with respect to the operability of the equipment and, if so, what did you say to Mr. Drake?

MR. GOLDMAN. I object to that question also on the grounds of relevancy. The discussions between Mr. Oddi and Mr. Drake, if any, on this point are also irrelevant to the question of the meaning of the contract.

MR. CARR. Well, I'd like to hear the

witness' response.

A I don't recall any specific conversations with Mr. Drake, but whether it be with Mr. Drake or whomever, whether Mr. Conway or what-have-you, and just how I conveyed this, I don't recall any particular conversation. It was to be as is, and the quantities and specific items were to be as is; in other words, it was not our intention to represent by a list that you would find all of these items and have to pay for them, and then when the time came if one or two items were missing that they'd have to pay for them anyway. In other words, it would be established at the time of taking, and the operability would be established by their own examination.

Q What, if anything, did you say to Mr. Drake or anyone else at the company concerning the assignment of the patents?

MR. GOLDMAN. I object to that question on the grounds of relevancy as well.

MR. CARR. Okay. We will ask the witness to please respond.

A I don't recall any conversations with respect to patents.

the witness when your time comes. At the moment I am pursuing my examination, and I simply insist that my questions be answered responsively and that gratuitous, volunteered statements not be made.

MR. CARR. Those are objections on my part, and the reasons for them. Go ahead.

Q Mr. Oddi, other than as a stockholder in any of these companies which you have identified, do you perform any function?

A I severed all relationships with all companies on or about that same time in early 1969 and have not since then nor do I now perform any functions.

Q Mr. Oddi, what was the reason for your severing your relationship with all of these companies, including National Radio Company?

A I did not feel that my method of operations and that of Mr. Lerner were coincident and could co-exist.

Q Could you elaborate on that a little bit more?

A I didn't feel that his method of operation, for example, in National Radio Company, bringing in a man to run the operations of the company without my knowledge and without my approval, the subversion of my own responsibilities, and some like actions

in the other companies, too.

MR. CARR. Move to strike on the ground that it is opinion.

Q Is it fair to say, Mr. Oddi, that as president of National Radio Company you felt that Mr. Lerner was interfering with the function of your office in that company?

MR. CARR. Objection.

A I would say that that was certainly instrumental in my decision.

Q Now, you mentioned that Mr. Lerner brought in a man to run the company -- I think that was your phrase.

A Generally correct.

Q Could you tell me who that man was and when this happened?

A This was Mr. Horner, who was brought into the company in about mid-19- -- about August, I believe, 1968.

Q I see. Now, Mr. Oddi, you described your responsibilities with National Radio Company as being particularly related to acquisitions and divestitures of assets, corporate combinations, and so forth; is that correct?

A That is correct.

Q Who was, during the period of time that you were president of National Radio Company, functioning as the chief executive officer of that company in fact with respect to matters that did not involve acquisitions?

A I think perhaps I may have misled you. When I became president of National Radio Company -- whether I misled you or not, let me clarify it -- when I became president of National Radio Company, I had the title of chief executive and I essentially ran the company with the approval of the Chairman and the Board, although the Chairman had a strong interest and kept himself well advised day to day.

Q Who was that Chairman?

A Mr. Lerner.

Q Thank you.

A (Continuing) However, in mid-1968 -- as I say, I think it was August -- Mr. Horner was brought into the company without my prior knowledge or consultation at all, and I was told that he was going to be the General Manager, I believe was the term. I was told that his responsibilities were General Manager reporting to me. However, apparently Mr. Horner was told that his responsibilitie

would be General Manager reporting to Mr. Lerner. When I insisted that this be clarified, as it was later -- the Board did clarify and approve an organization chart that clearly pointed out -- well, I should say that unless it was clarified I refused to be responsible -- it clearly pointed out that then Mr. Horner was the General Manager reporting to an executive committee, and that my responsibilities at my insistence and clarification, would be restricted to acquisitions. And in this case, this divestiture fell into that area, and that was essentially it.

Q Now, during the period of time that you were functioning in connection with the acquisition of the Atomichron product line by Frequency Electronics, did you report in fact anything relating to this transaction to Mr. Lerner directly?

A On this transaction?

Q Yes.

A Yes. Mr. Lerner was kept fully informed, and I think this memorandum demonstrates that, at all times what the progress was. When I say "all times," all reasonable times as we made progress, where the matter stood, what my opinions were on it, what

anyone else's pertinent opinions were on it, why it would or would not be good for the company.

Q To your knowledge, Mr. Oddi, during the discussions and negotiations with Frequency leading to this acquisition, did Mr. Lerner have any direct discussions or meetings or contacts with any representative of Frequency Electronics?

A I can't really answer that question because apparently at some point he had some kind of a meeting with -- meeting either pre-determined or chance meeting with at least members of the law firm of Pryor, Braun or the people involved. What happened in that meeting I am not clear on and have never been clear. And whether he had other meetings or not -- I don't recall any to my knowledge, but this does not preclude the possibility because Mr. Lerner's office was in New York and it is possible that he did. I don't think -- well, it is possible.

Q Now, do you in that connection, Mr. Oddi, ever recall meeting with Mr. Block at Mr. Lerner's office on Park Avenue in New York?

A I don't recall it.

Q Is it possible that you did meet Mr. Block with

Mr. Lerner at his office in New York?

MR. CARR. Objection.

A It is possible.

Q Now, Mr. Oddi, you testified that you have no recollection of Mr. Block or any representative of Frequency ever telling you that they regarded the Zacharias patent as being of prime importance in the effective functioning and marketing of the Atomichron product line; is that correct?

A I believe I did, right. I do not have a recollection.

Q Do you have a recollection of Mr. Block or anyone at Frequency mentioning to you that they considered a portion of the invention as being of prime importance to the functioning of the Atomichron product line, the Cesium beam frequency standard in particular?

A Yes. I believe that I recall Mr. Block not making a big point but making reference to the fact that the Cesium beam tube was of prime importance in the apparatus.

Q Do you know, Mr. Oddi, whether the Zacharias patent relates to the functioning of the Cesium beam tube?

MR. CARR. Objection.

have just cited.

Q Now, in that connection, do you ever recall Mr. Block or anyone at Frequency expressing to you concern over the potential competition which Frequency would be facing from Hewlett Packard if it bought the Atomichron product line?

A No, not in any context, no. I don't remember any reference to that.

Q You don't remember Mr. Block ever saying to you that it was of concern to him that he be able to compete with Hewlett Packard by reason of the patent monopoly which Frequency hoped to acquire when it purchased the Atomichron product line?

A No. I don't -- You have used a word that is throwing me a little bit.

Q What is that?

A You said "concern."

Q Well --

A (Continuing) Let me put it this way. I do not recall any specific comment or reference to that.

Q Let me say if I can rephrase the question. Whether you interpret it as an expression of concern or not, do you recall Mr. Block or any representative of Frequency during these negotiations discussing with

you the question of Hewlett Packard's competition in the area of a competitive product to the Atomichron product line?

A No, I do not.

Q Mr. Oddi, do you recall ever saying to Mr. Block or do you recall anyone else at National or on its behalf ever saying to Mr. Block that National had undertaken a patent infringement action against Hewlett Packard Corporation?

A No. I do not believe I ever made the statement, nor do I know of anyone in National who made that statement to him, at least in my presence.

Q Do you recall either yourself or anyone else on behalf of National ever advising Mr. Block or anyone at Frequency that National was in the process of investigating the bringing of a claim against Hewlett Packard Corporation for the patent infringement?

A I did not get into a discussion or make the statement, but at some point, and I don't know how, I believe the point did come out that the company felt that there was a patent infringement and how this would arise to his attention I don't know.

Q Well, what is the basis for your recollection,

Q Is it your testimony that from the time discussions between Frequency and National began, to the best of your knowledge, Frequency did not express reservations but rather continued to proceed with the negotiations?

A If you will permit me to answer in my words --

Q Sure.

A The negotiations did not proceed evenly and smoothly. I would say Mr. Block is a good negotiator and continued to negotiate and to raise questions, and one of the questions was how good the equipment was and how useful it was in order to produce additional equipments, perhaps even additional tubes -- maybe it had to do with the tube itself; I don't recall. And there was further dickering on price, and considerations of that type, but I don't recall that at any time there were any serious halts or slow-downs in the negotiations.

Q So then it is your testimony that you do not recall a time at which Mr. Block or someone else on behalf of Frequency said that they would not proceed with the acquisition unless they could have some assurance of the strength of the patents in connection with the Atomichron product line and

particularly the Zacharias patent?

A No. I do not recall any such time or such statement or such position.

Q Mr. Oddi, do you have any knowledge of why this Preliminary Memorandum, identified as Exhibit 1 of the plaintiff on Mr. Lerner's deposition, was prepared?

A No, I really don't. As I said, I don't recall seeing this at any time, and therefore any knowledge would be pure conjecture.

Q Is it your recollection, Mr. Oddi, that you were not aware of any letter having been written on behalf of National Company to Hewlett Packard Corporation concerning alleged patent infringement of the Atomichron product line prior to the time of the closing of the deal with Frequency?

A I would have to say that I do not recall being aware. I have no recollection of a letter being sent to Hewlett Packard.

(Discussion off the record.)

Q Mr. Oddi, was it customary for certain executive decisions to be made at National Radio Company in the period of late 1968-early 1969 after Mr. Horner arrived without your knowledge?

Goodman/mc

DEFENDANT
EXHIBIT D
U. S. DIST. COURT
S. D. OF N. Y.

A K

UNITED STATES DISTRICT CC

DISTRICT OF MASSACHUSETT

LOUIS C. LERNER, Plaintiff vs. NATIONAL RADIO COMPANY, INC. et al., Defendants	Civil Action No. 73-2328-M In Massachusetts

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IN THE UNITED STATES DISTRICT COURT

FOR THE SOUTHERN DISTRICT OF NEW YORK

FREQUENCY ELECTRONICS, INC. Plaintiff vs. NATIONAL RADIO COMPANY, INC. and LOUIS C. LERNER, Defendants	Civil Action No. 72 Civil 412(CLB)

Washington, D. C.

Tuesday, December 3, 1974

Deposition of:

E. WHITNEY DRAKE

a witness, called for examination by counsel for Louis C. Lerner, pursuant to notice, subject to change in place, copies of which are attached to the court copy of this deposition, taken at the offices of Naval Ships Systems Command, National Center, Building 3, Room 8 W 57, Washington, D. C., beginning at 10:30 o'clock a.m., before Eleanor S. Goodman, a Notary Public in and for the District of Columbia, when were present on behalf of the respective parties:

For Louis C. Lerner:

RICH, MAY & BILODEAU
By EDWIN J. CARR, ESQ.
One State Street
Boston, Massachusetts 02109

For Frequency Electronics, Inc.:

PRYOR, CASHMAN & SHERMAN
By SANFORD M. GOLDMAN, ESQ.
410 Park Avenue
New York, New York 10022

For Kenway and Jenney:

NEWMAN, MESERVE, KING & ROMERO
By ROBERT A. ROMERO, JR., ESQ.
125 High Street
Boston, Massachusetts 02110

Also Present:

HENRY D. PAHL, Defendant in New York action

C O N T E N T S

WITNESS:	EXAMINATION BY COUNSEL FOR: LOUIS C. LEPNER (Mr. Carr)	FREQUENCY ELECTRONICS (Mr. Goldman)	KENWAY AND JENNEY (Mr. Romero)
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INDEX TO EXHIBITS

EXHIBIT		FOR IDENTIFICATION
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1:	Letter dated February 24, 1969	99
2:	Letter dated March 3, 1969	100
3:	Letter dated March 5, 1969	100
4:	Letter dated April 2, 1969	101
5:	Letter dated June 20, 1969	101
6:	Letter dated July 16, 1969	101
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14:	Letter dated August 17, 1971	203

with full certification and can be used at the trial, even without the signature of the witness.

Off the record.

(Discussion off the record.)

MR. CARR: On the record.

MR. ROMERO: As for the Massachusetts case, I am willing to adopt substantially the same things, except that I would like to add while we waive filing, either party may use the deposition at any time in the course of the proceedings as the occasion may require.

MR. CARR: No problem.

Thereupon,

E. WHITNEY DRAKE

a witness, was called for examination by counsel for Louis C. Lerner and, having been first duly sworn by the Notary, was examined and testified as follows:

EXAMINATION BY COUNSEL FOR LOUIS C. LERNER

BY MR. CARR:

Q Please state your full name, Mr. Drake.

A Edward Whitney Drake.

Q And are you generally known by -- and how are you generally known, sir?

A E. Whitney Drake.

Q And what is your age?

A Thirty-seven.

MR. GOLDMAN: That is a good age.

BY MR. CARR:

Q And would you briefly summarize your educational background?

A Graduated from high school 1954, went to Harvard College and Boston University Law School, admitted to Massachusetts Bar in 1961.

Q Do you have any special training in accounting?

A No.

Q And would you please briefly summarize your professional experience?

A I was in general law practice for about two years after I graduated from law school. I was in commercial and real estate finance with a finance company and a life insurance company for about three years after that. I was in private practice for about ten months after that, and I joined National Radio Company then in about July, 1967. I was with them -- let's see. December '71, I went with General Dynamics Corporation December '71, left them March '73.

I was a combination of law practice and some consulting work with a consultant for a short time, and then I came with the Navy Department in August of '73, which of course I am with now.

Q Could you please describe in some detail the title of your job and where you are actually now located, Mr. Drake?

A I am Assistant Counsel for the Naval Sea Systems Command, which is part of the Office of General Counsel for the U. S. Navy Department. We deal -- my primary responsibilities are in major ship building claims, under various contracts.

Q And would you please state your present home residence?

A 5222 Lighthorn Road, Burke, Virginia.

Q During the period you were with National Radio Company, from July 1967 to December of 1971, please describe in reasonable detail your work and responsibilities.

A Well, one of my responsibilities was in dealings on government contracts, in terms of claims preparation, negotiation of terms, negotiation of settlements.

Another major area of activity was involved in financial matters, negotiating or helping to negotiate some

financial transactions, contract drafting for sales contracts, warranties, this type of thing, and some general type corporate activity. I was also an officer of the company for approximately four years, from about November '67 to December '71, when I left. I was clerk, which is equivalent to secretary in out of state jurisdictions.

MR. CARR: Can we interrupt the deposition to show that Mr. Henry D. Pahl, P-a-h-l, Jr., a defendant in the Massachusetts case, has entered the room.

Thank you.

BY MR. CARR:

Q During the period of time you were with National Radio Company, Mr. Drake, did you have contacts with any law firm in the Boston area engaged in the general corporate practice of law?

A Yes. With Rich, May & Bilodeau, in Boston.

Q In Boston. And did you call upon Rich, May and Bilodeau for counsel and advice from time to time?

A Yes.

Q And who was the person at Rich, May & Bilodeau that you primarily sought advice from?

A Primarily, it was Tom Bilodeau.

Q Would that be Thomas H. Bilodeau?

A That's correct.

Q And during that same period of time, did you call upon or have any contacts in the Boston area with a patent law firm, or more accurately, a law firm specializing in patent matters?

A Yes. National Radio Company's outside patent counsel had been and was during my period Kenway, Jenney & Hildreth, in Boston, Massachusetts.

Q What was the name of the attorney at Kenway, Jenney and Hildreth with whom National or you had principal or primary contacts?

A It was primarily Clarence Lyon.

Q That is Clarence S. Lyon. Is that correct, Mr. Drake?

A That's correct.

Q And is it accurate to say that you had or someone at National Company had primary contact with Mr. Lyon during that period you were with National Company?

A I think that -- I think it would be better to clarify your question. Certainly I spoke with Clarence Lyon frequently on legal matters, but I am sure that other

officers of the company did also. To what extent, I don't know.

Q To your knowledge, were there other people at National Company that had contact with Mr. Lyon or other persons at Kenway, Jenney and Hildreth?

A I am sure it would have been Frank Oddi and John Conway.

Q You spoke of Kenway, Jenney and Hildreth, and I ask you, sir, do you know whether the name of that firm has now been changed to Kenway and Jenney?

A I don't know that.

Q For thesake of brevity, could we refer to Kenway, Jenney and Hildreth here in this deposition as Kenway and Jenney?

A I have no objection.

Q All right.

You referred to Kenway and Jenney as National's outside patent counsel?

A Yes.

Q By that phrase, sir, do you mean that National had or may have had an inside patent counsel?

A No, I don't mean that.

in the office of Frequency at the time the deal was reached between Mr. Oddi and Mr. Bloch as referred to in that paragraph, sir?

A No.

MR. GOLDMAN: I object to the form of the question, which assumes that a deal was reached prior to the date of the final contract between Frequency and National, Mr. Carr.

MR. CARR: Okay.

BY MR. CARR:

Q Did you participate in any way in the negotiations which resulted in the sale of the Atomichron product line to Frequency?

A Well, I will refer to my earlier answer, which is that I had no cognizance of this situation until at least January of 1969. Now, I remember exchanging some draft contracts with Kent Klineman sometime in January. I don't know how many drafts. It might be one or two. I don't even recall if we discussed terms and conditions as such. I remember in late January there was one discussion between Kent Klineman and -- well, as I think of it, there were two. There was a discussion involving Clarence Lyon, Tom Bilodeau, myself and Kent Klineman, involving details of the

agreement, and I can't exactly recall what they were, but subsequent to that date, there was a discussion between Kent Klineman, Martin Bloch, Frank Boyer, who was a Vice President of Engineering, and myself, relating to what patent or patents National Radio would get a license back for, as part of the final form of this transaction.

Other than that, no. I had no particular part in any of these negotiations.

Q So I can understand your testimony, Mr. Drake, is it that up to the date of Lyon Exhibit 6, you had nothing to do with work or negotiations which I have generally referred to as the sale of the Atomichron product line?

A That is essentially correct. I would, of course, place it after the date of that Lyon Exhibit 6.

Q What discussions did you have, if any, with Mr. Oddi, prior to January 3, 1969, in connection with the Atomichron or the Atomichron product line?

A None that I remember.

Q Do you remember Mr. Oddi saying anything to you about his interest in selling the Atomichron product line?

A When?

transaction?

A His interest would be basically financial. It would be, for example, either setting up for collection of the promissory notes and deposit and use of the cash, cash planning, that type of thing, the financial type responsibilities.

Q Would you please refer to page 2 of the first draft, and Paragraph 5, which is entitled "Title to be conveyed"?

What was your intention with respect to the language contained in Paragraph 5?

MR. GOLDMAN: I object to this question on the same grounds as before, Mr. Carr, with the added objection that Mr. Drake's intention is totally irrelevant under any view of the significance of the instrument, even if one were to assume that there is an ambiguity in the final agreement.

MR. CARR: Let me read the intention as to also include whatever state of mind you might have had at that time, if you would please tell me what you intended to mean when you said, quote, "All items of inventory and machinery, including without limitation Items 1 through 85 (No. 75 having been deleted), on Exhibit A, attached hereto, are conveyed

'as is'," et cetera?

A Well, obviously, the "as is" is to say with no warranty, that we conveyed them, and the "as is" is uniform commercial code type language, to say that they are conveyed as they are.

The balance of the matter, as I read it, and recall it, was that there was a limited warranty here. Basically, that NRCI owned the items, and that it had the right to convey them.

Q And the final paragraph of Paragraph 5, which reads, quote, "NRCI warrants that it has full right and title to the items conveyed hereunder, and that it has the right and authority to convey the same."

What did you mean by "full right and title," Mr. Drake?

MR. GOLDMAN: Same objection, Mr. Carr. I think the witness in fact has answered the question.

MR. CARR: I will zero in on these words, though.

THE WITNESS: I will refer back to my prior answer, because that's, I think, reflective of it.

BY MR. CARR:

Q Whitney, I want to have you say it again.

What did you mean by "full right and title"?

A That NRCI owned them, and that it had the right to convey them.

Q Now, with respect to Paragraph 6, and the royalty, do you recall any discussion with Mr. Oddi or anyone else at National Company, concerning the royalty payments which are referred to in Paragraph 6 of the first draft?

MR. GOLDMAN: Note my continuing objection, Mr. Carr.

MR. CARR: Okay.

THE WITNESS: I have no clear memory of a discussion. I am sure that based on the practice described, I must have discussed it, but I don't remember.

BY MR. CARR:

Q Would you please refer to Paragraph 8 in the first draft, sir, which is entitled, quote, "NRCI causes of action," and read that, sir?

A Yes.

Q All right. Do you remember any discussion with Mr. Oddi or anyone else at National Company with respect to the assignment or conveyance of causes of action?

A Your question was at National?

Q Yes. Anybody at National, the assignment or causes

of action as referred to in said Paragraph 8.

A I have no memory of any discussion on that particular matter. I think it was pretty much embodied in the memorandum that I received on this.

MR. ROMERO: May we have that clarified?

THE WITNESS: That would be --

BY MR. CARR:

Q Which memorandum are you referring to, sir?

A The early January one from Frank Oddi.

Q I show you Lyon Exhibit 6, and is that the memorandum that you are referring to, sir?

A Yes.

Q And I refer to page 2 of the document attached to Mr. Oddi's letter of January 3, which follows the words "NRCI causes," and reads as follows, quote: "NRCOI will assign all causes of action presently accrued or pending, including without limitation causes for patent infringement, provided FEI assumes all risks and expenses of such litigation; and provided that any net proceeds after reasonable expenses be shared equally by FEI and NRCI."

Is that the language you refer to, sir?

A That's right.

Q Did you participate with Mr. -- with anyone, did you participate in any way -- correction: Did you participate any in any way in the drafting of the letter agreement which is attached to Lyon Exhibit 6?

A No.

Q Did you discuss with anyone that language which appears in Paragraph 8 of the first draft, Lyon Exhibit 7, which language in part reads as follows, quote: "Provided that FEI hereby agrees that it assumes all risk and expenses of such litigation."

A I have only the vaguest memory, but I am pretty certain that I discussed it with Clarence Lyon.

Q What is your memory of that discussion with Mr. Lyon?

A I think it was just part of a general discussion of the patent aspects of the agreement, and probably in the nature of a question from me whether he felt there was anything I should add or write in regard to the subject, other than what is here.

Q Did you discuss with him the reference "Provided that FEI hereby agrees that it assumes all risk"?

A That is, I think, part of what the discussion on this paragraph would have been, yes.

Q What were the risks, if you remember, that was discussed with Mr. Lyon?

A Generally the risk that they would lose the patent suit.

Q Did you discuss, included with that was there any discussion of patent validity or invalidity?

A No; not that I remember.

Q With respect to Paragraph 16, which provides "This agreement shall be governed in all respects by the laws of the State of Massachusetts," did you discuss that provision with anybody?

A I have no clear memory of doing so. I am pretty sure it is boilerplate.

Q What was your practice with respect to, if any, what was your practice with respect to making agreements drafted by you, governed by the law of Massachusetts?

A I would say it was a general practice.

Q That you would include such a thing?

A Yes.

Q If at all possible, in negotiations?

Exhibit F being entitled "Assignment of the Patents," and Exhibit G being entitled "Assignment of Trademark," and do you recognize the typing, sir, on Exhibit F, the Assignment of Patents?

A No, I don't.

Q Do you know whether or not that was typed at your offic or somewhere at National Company?

A I don't know for certain, no.

Q Would you take a look at Exhibit G and tell me if you recognize the typing on that document, sir?

A Again I don't.

Q Do you know whether that was typed in your office or somewhere at Nat al Company?

A I am not sure.

Q With respect to the language, sir, in the assignment of patents, which reads in the granting clause as follows, quote, "Now therefore, for good and valuable consideration, the receipt of which is hereby acknowledged, said National Radio Company, Inc. hereby assigns to said Frequency Electronics all right, title and interest in and to the patents and inventions claimed therein, together with the know-how associated therewith, said patents bearing the

following registration numbers and dates (as registered in the United States Patent Office):"

What is your memory, sir, of that language? Is that your language, sir?

A That is substantially --

MR. GOLDMAN: I enter an objection to the questioning along this line. I don't think there is any relevance at all to the question of whose language it is.

MR. CARR: Let the question stand, please.

THE WITNESS: The language is either identical or definitely based upon forms forwarded to me from Kenway, Jenney and Hildreth.

BY MR. CARR:

Q And you had discussed with Mr. LaHive, Mr. Lyon, or both of them, or other people at Kenway-Jenney, this language. Is that correct, Mr. Drake?

A I have a memory specifically of discussing this with Clarence Lyon, yes.

Q And in including in that discussion, did you discuss at all the matter of a warranty, expressed or implied, as to the patent validity?

MR. GOLDMAN: Objection to the question.

The document speaks for itself. The intention of representatives of National Radio Company as to its meaning is irrelevant; its meaning is something to be drawn as a conclusion of law by the court.

MR. CARR: We can all handle that when we get to court. I am interested in whether or not he had that discussion with Mr. Lyon, in accordance with that question.

Could you read the question back, please?

(The reporter read the question.)

THE WITNESS: It would be my recollection that we did.

BY MR. CARR:

Q Can you tell us what the discussion was, Mr. Drake?

A The substance of it --

MR. GOLDMAN: Objection.

THE WITNESS: The substance of it --

BY MR. CARR:

Q Please go ahead. The substance of the discussion --

THE WITNESS: As I remember it, was that these were about the only words we could use to cut off warranties as such. In other words, what the words say. We are conveying what we had, the right, title, and interest.

BY MR. CARR:

Q Do the words "quit claim" mean anything to you, Mr. Drake?

MR. GOLDMAN: Objection.

THE WITNESS: The only real meaning they have for me today is in terms of the so-called quit claim deed form, in real estate.

BY MR. CARR:

Q Did anyone at National Company tell you in connection with the preparation of patent assignment that the company intended to prepare a conveyance which would include a representation of patent validity?

MR. GOLDMAN: Objection.

THE WITNESS: The answer is no.

BY MR. CARR:

Q Did anyone at National Company tell you, in connection with the preparation of the patent assignment, that they intended to include a warranty of patent validity?

MR. GOLDMAN: Objection.

THE WITNESS: The answer is no.

BY MR. CARR:

Q In fact, didn't they tell you, Mr. Drake, and with reference to Mr. Bilodeau's letter and your conversations

with Mr. Lyon, that it was the expressed intention of National Company to disclaim any representations of patent validity?

MR. GOLDMAN: Objection to the form of the question.

MR. CARR: Please answer.

THE WITNESS: I have some memory of Clarence Lyon using virtually those words.

BY MR. CARR:

Q And also to disclaim any express or implied warranty of patent validity. Isn't that true, Mr. Drake?

MR. GOLDMAN: Objection to the form of the question.

THE WITNESS: And I give the same answer that I just gave, which is that Clarence Lyon and I discussed this in the context, for example, of the transaction, in Tom Bilodeau's letter.

BY MR. CARR:

Q At that same time, did you discuss Paragraph 8, as it appeared in the final agreement, which is Horner Exhibit 1 for identification, and is attached to the Complaint in this matter?

A Let me look at this.

Q And in your review of that paragraph, sir, would

you please compare that Paragraph 8 as it finally appeared in the agreement with the Paragraph 8 in your first draft?

A Yes. There was some discussion of this paragraph between Clarence Lyon and myself. The exact details, I don't remember, but I know that it was discussed between Clarence Lyon and me, yes.

Q Do you note the difference in the language, sir, as it finally appeared?

A Yes. I see that there is a sentence, for example, at the end, that in essence, NRCI agrees to allow its attorneys to deliver correspondence and cooperate with FEI on patent causes of action.

Q Did you discuss with Mr. Lyon the matter of privilege in connection with the preparation of this final sentence, sir?

A Yes. In essence, there was some -- I don't remember the exact details, but in essence, there was some kind of a discussion that we would have to waive privilege with respect to permitting Frequency to do that.

Q Permitting --

A Kenway-Jenney to act for FEI.

Q So Mr. Lyon, in speaking with you about the

privilege, had suggested language which appeared here. Would that be a correct statement, sir?

A I don't remember whether he actually suggested this specific language or whether I read it to him and he concurred. He concurred in the language.

Q He concurred in the language.

A Yes.

Q And did he concur with the thought that that languag in effect was a waive of National's privilege?

MR. ROMERO: Objection.

BY MR. CARR:

Q With respect to any privilege over the items conveyed, including the Atomichron patents?

MR. ROMERO: I object to that question. I don't think he can testify what the thought was, or whether Mr. Lyon concurred in any thought.

BY MR. CARR:

Q Did he concur in the concept that --

MR. ROMERO: I object to that question, too; same grounds.

BY MR. CARR:

Q Did you discuss with Mr. Lyon the

matter of waiving of privilege, Mr. Drake?

A Yes. In terms of getting consent from NRCI to act for FEI.

Q And what in substance did Mr. Lyon say with respect to waiving of privilege with -- in regard to the patents?

A Well, the discussion was very general, as I remember it. And in essence, it simply meant that we would have to in some way consent or release them to act for FEI, and in that sense, it would involve some kind of a waiver of privilege. Now, I don't remember any extensive detailed discussion beyond that.

Q Now, so that I can understand what happened, it is my understanding that you sent a copy of Draft No. 1 to Mr. Lyon or Mr. LaHive at Kenway-Jenney and asked for their comments. Is that correct, sir?

A Yes.

Q And as a result of their comments, Paragraph 8 as in the final agreement, Horner Exhibit 1, was prepared. Is that correct?

A I would be reluctant to say that as a result of their comments. Somehow, it evolved. Certainly it was discussed with Clarence Lyon, in considerable or perhaps I

should say detail, for want of a better word. But in other words, Clarence Lyon and I discussed this paragraph more than once.

Q Who had the ultimate responsibility for language with respect to the transfer of the patents and the assignment of the patents in this transaction?

A Kenway, Jenney and Hildreth. They had in effect a veto power over any language that would have been used in either a conveyance of patents or a conveyance of trademarks, or patent-related or trademark-related matters.

Q You, sir, as house counsel and as the clerk of National Company, did you, sir, rely upon Kenway, Jenney and Hildreth for patent counsel and advice concerning this transaction?

A Yes.

Q Do you recall, sir, whether they gave you any advice or counsel or recommendations as to language which you did not follow in the drafting of that agreement, or the exhibits thereto?

A They did not give me any advice that I did not follow with respect to this agreement and the exhibits.

Q Would it be accurate to say that what advice they

gave you, you did follow?

A That is correct.

Q Would you please look at Paragraph 5, sir, of the final agreement, which is again Horner Exhibit 1, and which is attached to the Complaint, and compare that Paragraph 5 in the final agreement with Paragraph 5 in the first draft, sir?

MR. GOLDMAN: I simply wish to object to any attempt to elicit testimony from the witness concerning the meaning of Paragraph 5 or any other provision of the final agreement.

MR. CARR: Off the record.

(Discussion off the record.)

BY MR. CARR:

Q Referring to Paragraph 5 in the final agreement, and Paragraph 5 in your first draft, it is observed that the following provision was added or inserted in the final agreement which did not appear in the first draft, in the following words, quote, "Patent shall be conveyed by assignment in the form hereto attached as Exhibit 'F'. The trademark and trade name which are to be conveyed hereunder shall be conveyed by assignment in the form hereto attached as Exhibit 'G'."

Do you recall discussing the adding of that language,

sir, with Mr. Lyon or Mr. LaHive or someone at Kenway-Jenney?

A I don't recall discussing the addition of this specific language with them. It derives from the conveyance forms which we did discuss and work out between us, and of course, they saw this draft and other drafts in the latter part of January, 1969.

Q Did you, sir, insert that additional paragraph on your own, without consultation or conference with anybody at Kenway, Jenney?

A I wouldn't say so, no. In other words, this -- the fact that some words had to be added to pick up these exhibits which were now to be F and G, was discussed between either Clarence Lyon or John LaHive and myself.

Q Your practice, sir, in connection with this transaction, was that you would rely upon whom for such language and such comments?

A I would perhaps, on a thing like this, write the sentence itself, in the first instance, and submit it for comment, after discussion, for example, on patent matters with Kenway, Jenney and Hildreth.

Q Now, in the final paragraph, or the third paragraph,

of Paragraph numbered 5 in the final agreement, there was adde a sentence to the paragraph appearing in the first draft, and that sentence reads as follows: Quote: "No other warranties are made in connection herewith, whether expressed or implied."

What is your recollection, if any, of the conversations that you had concerning that sentence, sir?

MR. ROMERO: Objection.

THE WITNESS: That would have been part of my conversations with Tom Bilodeau and with Clarence Lyon, to address that point in Tom's letter, and to address this warranty matter. That specific language was discussed with Clarence Lyon.

BY MR. CARR:

Q Did you have any discussion with Mr. Lyon, Mr. LaHive, or anybody at Kenway, Jenney to the effect that the words "full legal title," as appearing in the third paragraph of Paragraph 5 in the final agreement --

MR. GOLDMAN: Be careful.

Off the record.

(Discussion off the record.)

BY MR. CARR:

Q -- was a warranty, either expressed or implied, of patent validity?

MR. CARR: Could you read that question back?

THE REPORTER: "Question: Did you have any discussion with Mr. Lyon, Mr. LaHive, or anybody at Kenway, Jenney to the effect that the words 'full legal title,' as appearing in the third paragraph of Paragraph 5 in the final agreement, was a warranty, either expressed or implied, of patent validity?"

MR. GOLDMAN: Objection to the form of the question; leads the witness; calls for a conclusion of law; totally improper.

MR. CARR: I am merely asking for discussions.

THE WITNESS: I like to think I can make that conclusion of law.

MR. CARR: Yes.

Okay. Do you understand the question, Mr. Drake?

THE WITNESS: Let me answer you this way: As I understand the question, you are asking whether or not in my conversations with Clarence Lyon, the matter arose that the words "full legal title" amounted to a warranty of patent validity.

MR. GOLDMAN: Object to the witness summarizing counsel's question. Object to the form of the question.

THE WITNESS: That's how I understand the question.

BY MR. CARR:

Q It is in substance my question, Mr. Drake. That is in substance my question.

A The answer to that question is that Clarence Lyon and I briefly touched on this, as I remember, and concluded that it did not.

Q And what did Mr. Lyon state that the words "full legal title" meant?

A I can better answer that to say that as I remember our conclusion --

MR. ROMERO: If he remembers.

MR. CARR: If you remember.

THE WITNESS: Well, then, to the question as stated, I don't remember.

BY MR. CARR:

Q Could you remember the substance of his comment?

A I remember the substance of our conclusion.

Q What is the substance of your conclusion, sir?

A Our conclusion, jointly, was that we simply represented that we owned the patents, that there were no liens, no asignments, to, shall we say, claims of ownership of the patents against NRCI. That's the substance of our conclusion.

Q Is it your testimony that the words "full legal title" had to do with the quantum or quantity that was being conveyed, i.e., 100 percent of whatever you had?

MR. GOLDMAN: Objection to the form of the question.

THE WITNESS: And I would have a job following that question, to draw an answer to it.

BY MR. CARR:

Q All right. We will let them go that way.

MR. ROMERO: Is this a good place for a break?

(Whereupon, a short recess was taken.)

MR. CARR: Back on the record.

During the brief recess, I had talked with Mr. Goldman and Mr. Romero concerning my earlier request for a production of documents in both the case pending in the Southern District and the case pending in the District of Massachusetts. It is my recollection that some of the documents were not available for inspection, my inspection, or the inspection and discovery

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Q Did not.

A But my memory is not good there.

Q Okay. Do you remember discussing the alleged infringement by Hewlett-Packard with anybody at Kenway, Jenney during that period of time?

A In very general terms, I do remember, I think, in the context of this question, of causes of action. But it was in general terms. I can't remember any specifics at all.

Q Had National, to your knowledge, initiated a cause of action against Hewlett-Packard at that time? And that is any time between the time of the first draft and the final agreement.

A To my knowledge, no.

Q Was there in existence a cause of action against Hewlett-Packard at that time?

A That would call for a conclusion of patent law by me, which I would be very loath to make.

Q Well, when I said a cause of action, I mean -- strike that question. I didn't mean a cause of action, Mr. Drake.

Was there any kind of an action filed in any court, to your knowledge?

A To my knowledge, no.

Q To your knowledge, at that time or prior to the closing -- at any time, prior to the closing -- had National Company or anyone in its behalf written any letter to Hewlett-Packard with respect to alleged infringement of any one or more of the Atomichron patents?

A To my knowledge, no.

Q Mr. Drake, do you know Louis C. Lerner?

A Yes.

Q And at that time, did Mr. Lerner have anything to do with the National Company?

A Yes. He was Chairman of the Board of Directors.

Q And do you know whether he owned any stock in the National Company?

A I know he owned a substantial block of stock.

Q Do you know approximately the percentage of his stock ownership, sir?

A Directly and indirectly, I would place it at this time at about 35 percent.

Q And was he -- did he occupy any office in the corporation?

A To the best of my memory, he was treasurer at

Q In connection with the preparation of the purchase and sale agreement for the Atomichron product line, Horner Exhibit 1 for identification, which is also attached to the Complaint in the New York case, did you have any conversations with anyone representing or employed by Frequency Electronics?

A When was that, now?

Q All right. From and after the time you saw Mr. Oddi's memorandum of January 3, 1969 up to the closing date, did you have any conversations with anybody at Frequency concerning the matters referred to in the purchase and sale agreement, Horner Exhibit 1?

A Yes. I will refer back to my answer earlier this morning. I had some conversations with Kent Klineman, the details I don't really remember, and I remember that one conference call that I referred to on the matter of a license back to National Radio. That's all.

Q And was that conference call also with Kent Klineman?

A It involved Kent Klineman, Martin Bloch, Frank Boyer, and myself. And it would have been late January, but I can't give you more of a date.

Q Did you exchange drafts of documents relating to the

sale of the Atomichron product line with anybody at Frequency or representing Frequency?

A To the best of my memory, it was Kent Klineman.

Q So the answer is that you did exchange drafts with Mr. Klineman. Is that correct? Draft agreements?

A That's correct, yes.

Q Was your primary contact with Frequency through Mr. Klineman?

A Yes.

Q Did you have a number of telephone conversations with him during this period of time?

A I can answer you best that I had some. I couldn't hope to recall how many.

Q And is it your testimony --

MR. GOLDMAN: Off the record.

(Discussion off the record.)

BY MR. CARR:

Q It is your testimony that you sent him one or more drafts of the agreement. Is that correct?

A That's correct.

Q Did you receive any comments from Mr. Klineman with respect to the agreement?

Frequency at the closing make any request for change or modification in that document which was rejected?

A No.

Q Mr. Drake, from the time that you first learned about the sale of the Atomichron product line to Frequency up to and including the closing date, did anyone from Frequency or anyone on their behalf state to you that they would not close the transaction if there was any question as to the validity of the Zacharias patent?

A I certainly don't remember anything like that. No.

Q Did anyone at National Company state to you that the sale of the Atomichron product line would not go through if there was any question as to the validity of the Zacharias patent?

A No.

Q Did anyone at National Company or at Frequency say to you or to your knowledge anyone else at National Company that the sale of the Atomichron product line would not go through if there was any question as to the validity of the Zacharias patent?

A No.

Q Or as to the validity of the Mainberger patent?

A No.

Q Or as to the validity of any one or more of the patents assigned pursuant to the purchase and sale agreement?

A No. To the best of my memory, that type of a matter never came up.

Q Did anyone in substance state to you or to your knowledge anyone at National Company anything as to the importance of any one or more of the patents conveyed and assigned as part of the Atomichron sales agreement to Frequency?

A Yes. The matter that came up was how National Radio would be licensed or what patents National Radio would receive a non-exclusive free license back under.

Q The only discussion was relative to National's rights under a license from Frequency to National. Is that correct?

A That's correct.

Q And did National get such a license back?

A Yes, it did. On one patent.

Q And what patent was that, sir?

A It would show on the first page of the agreement.

Q The first page of the agreement to which you

refer, sir, and that is Horner Exhibit 1, talks about in the center of that page, quote: "FEI agrees that it shall and it does hereby grant to NRCI the unqualified license and right to use Patent No. 2,883,540(Grant), subject only to the limitation on manufacture and sale of Atomichrons as set forth, such license to be non-exclusive, worldwide and without any obligation to FEI or any royalties or expense."

Is that the patent to which you refer?

A That's what I am talking about.

MR. CARR: It is 1:25. I think I have sort of got through this phase of it, and from now on, I think I am going to be post-closing, which will be after the closing. I think it would be an appropriate time to break, and then I can work up something, and then I think I can finish within probably 30 or 40 minutes.

THE WITNESS: I will tell you the truth. My time is getting close here, and I have got things to do and things I want to get done today. So as I have said to you before, I would just as soon we go through with as few breaks as possible.

Now, if you want to break for lunch, that's fine.

agreement that relates to certain G.F.P, government-furnished property, Items 38, 57 and 78 on Exhibit 8, the Atomichron agreement.

Q Thank you. Now, through the period of October 14, 1969, which is Drake Exhibit 9, do you recall Mr. Berritt, Mr. Klineman or anybody on behalf of Frequency stating to you, or to your knowledge anybody at National, that they were concerned about the validity of any one or more of the patents constituting the patents assigned in the purchase and sale agreement of February 1969?

A I don't recall any such communication, no.

Q Did anybody at Frequency or Mr. Berritt or anyone at the law firm of Pryor, Braun, Cashman and Sherman, to that date, October 14, 1969, state to you -- or to your knowledge, anyone at National Company -- that the validity of the Zacharias patent was of prime importance to the sale of the Atomichron product line?

A No.

Q Was there any discussion at all, through that date, of the validity of the patents which were assigned to Frequency as part of the Atomichron product line?

A No.

Frequency Electronics, wrote to Hewlett-Packard Company concerning an alleged infringement?

A I wasn't aware of that, no.

Q Now, as part of the transaction, which I have referred to as the sale of the Atomichron product line, and in accordance with your testimony, and with reference to Horner Exhibit 3, National Company took back a security interest in certain patents. Is that correct, sir?

A That is my recollection, yes.

Q And is it also correct, sir, that that security interest ran to the Zacharias patent, which is No. 2,972,119, and the Mainberger patent, which is 2,960,663?

A That is correct.

Q Now, sir --

MR. GOLDMAN: Mr. Carr, again I simply want to preface this line of questioning by objecting to questions which attempt to construe any written agreement between Frequency and National in this case.

MR. CARR: I am asking the witness this: If he would search his memory to tell me whether or not at any time prior to, let's say, at any time, after the closing up to and including March 17, 1971, the date of the memorandum,

Lyon Exhibit 5, that he was advised as counsel and clerk of National Company, or to his knowledge, anybody at National Company, that Kenway-Jenney had written and asserted an infringement claim against Hewlett-Packard.

THE WITNESS: To the best of my memory, no. Absolutely no.

BY MR. CARR:

Q And attention again is called to Paragraph 8 of the final purchase and sale agreement, sir, which paragraph refers to cause of action, and states in part that, quote, "Any net proceeds after reasonable expenses, including without limitation reasonable attorneys' fees, shall be shared equally between Frequency and National."

A Yes.

Q And as I understand it, sir, the testimony is that to your knowledge, neither you nor anyone at National knew anything about the alleged letter claiming infringement of the Zacharias and Mainberger patents. Is that correct, sir?

A That's right. We didn't know what they were doing.

Q Now, I direct your attention, sir, to April of 1970, and were you with the company in April of 1970?

A Correct.

Q Mr. Drake, who was it your responsibility to report to during the period of time that you were the general counsel and clerk of National Radio Company?

A For a period of time when both Ray Horner and Frank Oddi was with the company, it was sort of a divided thing where in effect I would report to Frank Oddi or Ray Horner, and then when Frank Oddi resigned, I reported to Ray Horner, who became President shortly thereafter.

Q Did you report on a regular basis at all to Mr. Lerner directly?

A No.

Q Did you nevertheless have occasion to meet with and discuss company problems with Mr. Lerner?

A On occasion, yes.

Q Would there be any factor that you can identify as determining when you would have direct discussions or reports to Mr. Lerner?

A Usually, if not 100 percent of the time, it would be if I were with Ray Horner or Fred Sweeney, and it would be at or near the time of a Board of Directors' meeting.

Q Based on your knowledge of the affairs of National

Radio Company when you were an officer and general counsel to the Company, would you say that Mr. Lerner was actively involved and interested in the affairs of the Company?

MR. CARR: Objection.

MR. GOLDMAN: You can answer the question.

THE WITNESS: I have to take your question in two parts. Actively interested, yes. Actively involved, I don't think that would be a fair statement to say he was actively involved in the management of the company, no.

BY MR. GOLDMAN:

Q Was he actively involved in certain aspects of the company's activities?

A On occasion, yes. For example, primarily bank relations, and financially related matters.

Q Now, Mr. Drake, we previously identified a preliminary memorandum which Mr. Pahl had prepared, and I wonder, Ed, do you have the --

MR. CARR: The memorandum?

MR. GOLDMAN: -- the exhibit reference to that memorandum?

MR. CARR: Sure do. Just a second.

MR. GOLDMAN: Actually, I may have it here.

MR. CARR: You are talking about Lyon Exhibit 2.

MR. GOLDMAN: Yes.

BY MR. GOLDMAN:

Q Now, that memorandum, Mr. Drake, appears to have accompanied a letter from Mr. Lyon to you, which was dated, I believe, November 20, 1968, and which we have also referred to previously. Am I correct that it was your testimony that you have no specific recollection of when you received the letter and the memorandum?

A That's right. It would seem that I would have received it shortly after November 20, 1968.

Q All right. And I believe it was also your testimony that you had no specific recollection of having done anything with the memorandum or having forwarded to anybody or brought it to anyone else's attention at National. Is that correct?

A No. What I said is, at least what I thought I said was it is probable that I would have circulated it to perhaps an officer or officers, one or two people, but I couldn't remember who.

Q Let me ask you this: Based on the fact that it was your habit to report to Mr. Oddi and/or Mr. Horner during the periods of time that those men were involved in

the operation of the company, would it have been likely that you circulated it to either or both of those men?

A Yes, it would be likely.

Q Would it have also been possible that you circulated it directly to Mr. Lerner?

A I would say that is very imporbable. It was rare for me to circulate -- not circulate, to send, anything to Lou Lerner.

Q Mr. Drake, have you read any of the pleadings in the New York action?

A No.

Q Have you read any of the transcripts of the depositions taken in the New York action?

A No.

Q Have you been offered any money to testify here today by anybody, other than perhaps in connection with the usual witness and subpoena fees?

A No.

Q Now, you did testify, or at least I think Mr. Carr represented, and you adopted his testimony, that the affidavit which had been identified as your Exhibit 10 today, and which has been filed in the New York proceeding, was

of this?

A I didn't ask him a question in those terms, no. As I remember, somewhere in the course of our conversations, there may have been some reference back to the letter and the memorandum that we had received in late November, but other than that, I don't remember, except for the fact that we had these conversations.

Q Well, is it your testimony that as a result of this letter and your discussions with Mr. Lyon, there was some discussion, at least by this period of approximately January 10, 1969, of the proposed, or of the question of a possible patent infringement by Hewlett-Packard Corporation?

MR. ROMERO: If he remembers.

MR. GOLDMAN: Of course if he remembers.

THE WITNESS: I would place it later in time than the 10th, significantly in January, and I don't recall any detailed discussion of any patent infringement by anybody in that time frame.

BY MR. GOLDMAN:

Q Well, the reason why I asked is you said you may have discussed with Mr. Lyon the letter and memorandum of November.

A That's about it. Exactly.

Q That letter and memorandum did discuss a possible patent infring ement action against Hewlett-Packard Corporation. Isn't that correct?

A That's right. And that would have been about the extent of the conversation.

Q To the best of your knowledge and recollection, there were no discussions of any kind between you and Mr. Lyon concerning the merits of any potential claim against Hewlett-Packard corporation?

A Definitely not.

Q And by that time, you knew that Frequency was seeking to acquire the Atomichron product line, but you were not made aware by anyone of any particular interest which Frequency had in a possible action against Hewlett-Packard Corporation. Is that correct?

A That's right.

Q And Mr. Lyon also, based on conversations you had with him, evidenced no awareness or knowledge of any concern of the proposed acquirer in the status of that situation.

A I don't remember.

MR. ROMERO: I am sorry. I didn't hear the question.

(The reporter read the question.)

MR. ROMERO: I would object to the form of the question. He has already answered as he understood it. You have my objection.

BY MR. GOLDMAN:

Q What was your understanding as to the significance in the final purchase agreement of Paragraph 8, whereby National assigned to Frequency causes of action which included causes for patent infringement?

A About the only thing was the -- apart from some possible question of this Hewlett-Packard action, just the general assignment of the what you might term the intangible right, so that if there was anything outstanding that maybe National Radio could have or should have brought for an infringement action, that right was assigned to FEI. But as you will recall in there, that clause says in effect that FEI bought the risk and whatever the result of that type of litigation would be. And that was the purpose of it.

Q Well, I think you started your answer by saying aside from the Hewlett-Packard situation.

A Yes.

Q And then you talked about a general kind of acquisition?

A That's exactly right.

Q Do I understand from the reference to aside from the Hewlett-Packard infringement claim, that you were aware at that time that a proposed or a possible patent infringement action against Hewlett-Packard Corporation was of material significance to Frequency?

A I was not aware of that, then or at any time leading up to closing.

Q And you had seen the Lyon letter, and the Pahl memorandum by that time.

A It would seem so.

Q Mr. Drake, do you have any documents in your possession which relate to the affairs of National Radio Company during the period of time you were counsel and an officer of the company?

A No.

Q You have nothing which would relate in particular to the Atomichron product line.

A I have a copy of the final agreement, but that's all.

Q Who was the person who hired you?

A Frank Oddi.

Q And he was at that time the President?

A That's right.

Q And your duties as general counsel, I think you testified involved working on government contracts, financial matters, drafting contracts, sales contracts and general corporate activities.

A Yes.

Q Did you have the ultimate responsibility as counsel for all the matters that you worked on?

MR. GOLDMAN: I object to that question. I think it calls for a conclusion of law, when you ask if he had the ultimate responsibility as counsel.

MR. ROMERO: Well, let me rephrase the question.

BY MR. ROMERO:

Q Were you required to consult with any other attorneys as to matters which you handled as general counsel?

A It would depend on the matter. On many matters -- or I will qualify "many," I will say on some matters, yes.

Q Now, who imposed the requirement on you to consult with other counsel?

Kenway and Jenney as to whether those patents were valid?

A To the best of my memory, that office got all the National Radio patents.

Q You didn't specifically ask them that question?

A To my memory, no.

Q As to whether they were valid.

A To my memory, no.

MR. GOLDMAN: I don't understand what you mean when you say that office got all the NRC patents.

THE WITNESS: They filed all the applications, got them. That's what I mean.

MR. GOLDMAN: You mean prosecuted the patent applications.

THE WITNESS: I guess that would be the term of art.

BY MR. ROMERO:

Q And it is a fact, isn't it, that at the time this agreement between FEI and National Radio Company was prepared, you were not concerned about the validity of any of the patents.

A That is true.

Q You had been specifically instructed by Mr. Lyon not to warrant the validity of any patents. Isn't that true?

A As I recall, that is true, yes. I won't exactly quarrel, but certainly counselled not to warrant the validity, yes. Yes.

MR. ROMERO: May I have Lyon Exhibit 1?

BY MR. ROMERO:

Q Now, I show you the sheaf of papers which has been marked as Lyon Exhibit 1, and that is a certified copy of the Patent Office's file in connection with the molecular beam apparatus.

A Yes.

MR. CARR: Can that be called the file wrapper? Is that correct, Mr. Pahl?

MR. PAHL: Yes, that is the file wrapper of patent number --

MR. CARR: Why don't we identify it in those terms?

MR. PAHL: It is the file number of Patent No. 2,972,119.

MR. CARR: File wrapper. That is a term of art, as I understand it.

BY MR. ROMERO:

Q Have you ever seen this document before, or a copy of this document?

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

FREQUENCY ELECTRONICS, INC., Plaintiff, vs. NATIONAL RADIO COMPANY, INC. and LOUIS LERNER, Defendants.	Civil Action No. 72 Civ. 412

ANSWERS AND OBJECTIONS
OF DEFENDANT LERNER TO
PLAINTIFF'S REQUEST FOR ADMISSIONS

1. U.S. Patent No. 2,972,115 in the name of Gerald R. Zacharias, Joseph H. Holloway and Eugene F. Grant entitled "Molecular Beam Tube Apparatus" (hereinafter referred to as "the Zacharias patent"), issued on February 14, 1961.

1. Admitted and alleges that a copy of U. S. Patent No. 2,972,115 is attached hereto as Exhibit X.

4. At the time of filing of the Zacharias application, Messrs. Zacharias, Holloway and Grant were agents and/or employees of defendant, National Radio Company, Inc. a/k/a National Company, Inc., a Massachusetts corporation (National Radio Company, Inc. a/k/a National Company, Inc. and its predecessors

and successors are hereinafter referred to collectively as "National"), and the Zacharias application was assigned to National.

4. Admitted.

7. On October 3, 1956, National conducted a press conference at the Overseas Press Club, 35 East 39th Street, New York, New York with respect to a product identified as the Atomicron frequency standard.

7. Admitted.

8. At the press conference conducted at the Overseas Press Club on October 3, 1956, National demonstrated the Atomicron frequency standard.

8. Admitted.

22. Specifically, more than one year prior to the filing date of the Zacharias application (i.e., prior to October 29, 1956):

(a) Atomicron Serial Nos. 1 and 2 were sold to the U.S. Air Force RAFD under Contract No. AF30 (635) 3854;

22(a) Admitted.

(b) Atomicron Serial Nos. 2 and 4 were sold to the Bureau of Ships under Contract No. NOBSR-72630(1718);

22(b) Admitted.

(c) Atomicron Serial No. 6 was sold to the Office of Naval Research under Contract No. NONR-1707(00);

22(c) Admitted.

(d) Atomicron Serial Nos. 8 and 9 were sold to the Signal Corps Supply Agency under Contract No. OA-36-039SC-64653.

22(d) Admitted.

35. The letter of Exhibit D is representative of the letters sent out by National Company prior to the October 3, 1956 press conference.

35. Admitted.

39. At the press conference on October 3, 1956, literature describing the Atomicron frequency standard was distributed.

39. Admitted.

40. The document attached hereto as Exhibit F is a true and accurate copy of literature with respect to the Atomicron frequency standard that was distributed at the press conference on October 3, 1956.

40. Admitted.

46. As a result of the October 3, 1956 press conference, articles describing the Atomicron frequency standard appeared in the New York Herald Tribune for October 4, 1956; the New York Times for October 4, 1956 and the Sunday New York Times for October 7, 1956. Accurate copies of these articles are attached hereto as Exhibits H, I and J.

46. Admitted.

47. On October 24, 1956, an article appeared in the Boston Traveler describing the Atomicron frequency standard. An accurate copy of this article is attached hereto as Exhibit K.

47. Admitted.

51. The document attached hereto as Exhibit L is an accurate copy of an article entitled "Atomic Clocks" by Harold Lyons which appeared in Scientific American Volume 196 No. 2 published in February, 1957 at pages 71-82.

51. Admitted.

52. In the last paragraph of a U.S. Patent Office action mailed April 30, 1958 in connection with the Zacharias application, the Examiner in charge of the Zacharias application stated to National's attorneys that it was his assumption from the oath filed in connection with the Zacharias application, that the device shown in the Scientific American article referred to in paragraph 51 above "was not sold or in commercial use at a date more than twelve months prior to the date of this application".

52. Admitted; and further answering, alleges that the statement of the examiner is set forth at page 39 of the File History which is Exhibit A to the Request.

53. On November 3, 1958, National, through its then patent counsel, filed in the United States Patent Office an amendment in response to the Patent Office action identified in paragraph 52 above stating: "With respect to the last paragraph of the Examiner's action, none of the constructions claimed herein were included in any device sold or in commercial use more than one year prior to the filing date of the application".

53. Admitted; and further answering, states that the answer of National's patent counsel is set forth in page 44 of the File History, Exhibit A to the Request.